CASCADE™ TEK

TEST REPORT

CTC C1303B

January 5, 2015

Accredited by
American Association for
Laboratory Accreditation (A2LA)

Certified Commercial
Package Testing Laboratory
(ISTA)

MIL-STD Laboratory
Suitability Status by
Defence Logistics Agency (DLA)

LABORATORY LOCATIONS

OREGON
5245-A NE Elam Young Pkwy.
Hillsboro, OR, 97124 • Ph: 503-648-1818

COLORADO
1530 Vista View Drive
Longmont, CO, 80504 • Ph: 720-340-7810

www.cascadetek.com

Job Number: C1303

Rev.	Description of the Revision	Date
---	Initial Release of the Data Report.	December 5, 2014
A	Added Referenced Specifications, Clarified Test Procedures	December 9, 2014
B	Correct wording of customer test statement in item 6.	January 5, 2015

Test Title	Test Summary
Bench Handling	The test was conducted per the required standard with no deviations.
Vibration	The test was conducted per the required standard with no deviations.
Low Temperature	The test was conducted per the required standard with no deviations.
High Temperature	The test was conducted per the required standard with no deviations.
Humidity	The test was conducted per the required standard with no deviations.
Temperature Variation	The test was conducted per the required standard with no deviations.
Temperature Variation	The test was conducted per the required standard with no deviations.

Cascade Technical Sciences
www.cascadetek.com
1-888-835-9250

TESTING CERT #2582.02

January 5, 2015

Certification No: CTC C1303B

Attention: Mr. Darrick Forester
SLI Global
216 16th Street, Suite 700
Denver, CO 80202

Reference:

a. Cascade Tek Job No.:	C1303 & C1384
b. Cascade Tek Quote No.:	CTQ 15483 & CTQ 15972B
c. Client Purchase Order No.:	000079 & 000080
d. Technical Specification:	1. Hart InterCivic Verity Environmental Test Plan v4.0

Cascade Technical Sciences hereby certifies that One (1) lot of Verity Scan, Verity Touch Writer, Ballot Box, Standard and Accessible Booths was subjected to the following tests:

1. Bench Handling Test per Reference (b) Item 1, and (d1), exposed each of the designated samples to 4 inch (or 45 degree angle) rotational drops. Repeated for a total of 6 drops on each of the face 3 edges (3-2, 3-4, 3-5 & 3-6) until 24 drops had been performed per sample. Before and after the test, SLI personnel verified the equipment was within acceptable performance limits and inspected for damage.

2. Vibration (Basic Transportation/Common Carrier) Test per Reference (b) Item 2, and (d1), designated samples were subjected to the Basic transportation vibration tests outlined in Category 1. Sample shall be exposed to the vertical (1.045 GRMS) test for 30 minutes, the longitudinal (0.741 GRMS) test for 30 minutes, and the transverse (0.196 GRMS) test for 30 minutes. Before and after the test, SLI personnel verified the equipment was within acceptable performance limits and inspected for damage.

3. Low Temperature Test per Reference (b) Item 3, and (d1), exposed the samples to -20°C (-4°F) and allowed to stabilize. Then maintained for a period of 4 hours at -20°C. Ramped back to ambient temperature and held conditions. Before and after the test, SLI personnel verified the equipment was within acceptable performance limits and inspected for damage.

4. High Temperature Test per Reference (b) Item 4, and (d1), exposed the samples to +60°C (+140°F) and allowed to stabilize. Then maintained for a period of 4 hours at +60°C. Ramped back to ambient temperature and held conditions. Before and after the test, SLI personnel verified the equipment was within acceptable performance limits and inspected for damage.

5. Humidity Test per Reference (b) Item 5, and (d1), exposed the non-operating samples to a minimum of 24 hours at +23°C and 50%RH. Then ramped to 31°C and 88%RH and stabilized (2 hours). Began (10) 24-hour temperature & humidity cycles per Figure 3. Upon completion of 5 cycles the customer performed operational status test. Before and after the test, SLI personnel verified the equipment was within acceptable performance limits and inspected for damage.

6. Temp/Power Vary (Precinct Count Systems) Test per Reference (b) Item 6, and (d1), The UUTs; two Verity Scan and two Verity Touch Writer devices were placed inside an environmental walk-in test chamber and connected to a variable voltage power source. The temperature inside the chamber and the voltage supplied to the hardware varied from 50°F to 95°F and from 105 VAC to 129 VAC. Every hour of the test, each Touch Writer produced one marked ballot which was scanned by a paired Scan device. Each Scan device also scanned an additional 99 pre-marked ballots, for a total of 100 ballots Scanned per Scan device, each hour. During test performance, the operational functions were continuously exercised by the scanning of ballots. SLI personnel successfully conducted an operational status resulting in both the Verity Scans and Touch Writers successfully completing the requirements of the Temperature/Power Variation, Data Accuracy, and Reliability Tests. (Text supplied by customer)

7. Temp/Power Vary (Central Count Systems) Test per Reference (b) 15972B, and (d1), The UUTs; three COTS scanner workstations were placed inside an environmental walk-in test chamber and connected to a variable voltage power source. The temperature inside the chamber and the voltage supplied to the hardware varied from 50°F to 95°F and from 105 VAC to 129 VAC. Every hour of the test, each scanner workstation scanned 300 pre-marked ballots; the same 300 ballots were used in each of the scanner workstations. Every 4 hour cycle concluded with the generation of reports that detailed the vote data cast during that period. During test performance, the operational functions were continuously exercised by the scanning of ballots. SLI personnel successfully conducted an operational status resulting in each Central (Server) / Scanner workstation successfully completing the requirements of the Temperature/Power Variation, Data Accuracy, and Reliability Tests. (Text supplied by customer)

Testing was done in accordance with the above references as evidenced and reported in the accompanying data. The test samples were returned to the customer's facility for evaluation.

The original of this report is on file at Cascade Technical Sciences, Inc. under the above referenced certification number for review by authorized personnel. The results of the testing reported herein relate only to the actual items tested.

Respectfully submitted,

David Bowles
Quality Administrator
Cascade Technical Sciences, Inc.

Total number of pages in this document is 77.

The objective of this test program was to subject customer provided test hardware to environmental simulation in compliance with customer stated specification, including any authorized modification, deviations or concessions to the original requirements. The hardware consisted of items identified in the appropriate sections of this report. In addition to test hardware identification, each section contains information that describes the associated test setup and performance and the resulting data. Cascade TEK, Inc. measuring instruments used in testing were calibrated according to the requirements of ANSI/NCSL Z540-1-1944 and ISO/IEC 17025, 2nd Edition and are NIST traceable. Calibration records are on file and available for inspection by request. Because the test methods are well established and are qualitative or semi-quantitative in nature, Cascade TEK, Inc. does not apply measurement uncertainty unless obligated by contract. Measured value related to the corresponding tolerance requirement is used to decide whether a test meets the requirements of the specification. Any test hardware operational setups and resulting evaluations or inspections performed by the customer are not included in this report, unless they were explicitly requested. While observations and/or specification compliance statements may be reported, no interpretations or opinions regarding customer product performance are intended. Unless otherwise indicated in the appropriate report section, all contract obligations were met and the test objective achieved.

Test Data Log

Job Number: C1303
Customer: SLI Global

Date Started: 10/20/2014
Date Completed: 10/20/2014

Reviewing Engineer: David Bowles
Signature:

Responsible Technician: Tony Arbogast

Type of Test: Bench Handling
Test Specification: SLI Global SOW Section 4.3.4.2 Ref: MIL-STD 810D, Method 516.3, and Procedure VI

Specimen Description: Verity Scan (1) & Verity Touch Writer (1)

Specimen P/N or Model No.	Specimen S/N
3005350/2005350 (VS)	S1400005909
3005352/2005352 (VTW)	W1400007409

Laboratory Temperature: +75°F

Laboratory Humidity: 28%RH

Test Description: Expose each of the designated samples to 4 inch (or 45 degree angle) rotational drops. Repeat for a total of 6 drops on each of the face 3 edges (3-2, 3-4, 3-5 & 3-6) until 24 drops have been performed per sample. The customer will be on-site and perform operational testing as specified.

Initials	Date	Time	Notes	Photo
TA	10/20/2014	1305	Begin setup of the samples for bench handling exposure with the customer on-site.	☐
TA	10/20/2014	1336	Begin exposure to the VT-1400007409 sample as specified.	☒
TA	10/20/2014	1344	Completed 24 drops on the VT-1400007409 sample. The customer will perform post exposure inspection and operational testing.	☒
TA	10/20/2014	1351	Begin exposure to the VS-S1400005909 sample as specified.	☒
TA	10/20/2014	1357	Completed 24 drops on the VS-S1400005909 sample. The customer will perform post exposure inspection and operational testing.	☒
TA	10/20/2014	1440	The customer reports that both of the samples are operating as specified with no visible damage noted. Test Complete.	☐

DS2 - Test Equipment List

Test: Bench Handling **Job Number:** C1303 **Date:** 10/20/2014

Test Equipment List						
Equipment Description	**Manufacturer**	**Model**	**S/N**	**Cal No.**	**Calibrated Date (mm/dd/yy)**	**Calibration Due Date (mm/dd/yy)**
Metal Ruler	Lufkin	62	---	FR132	Verified Before Use	
4” Wooden Block	C-Tek	2”x4”	N/A	NA	Verified Before Use	
Digital Temp / RH Meter	Cole Palmer	90080-03	130743098	FR446	03/07/14	03/31/16


Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
TW 1400007409
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
TW 1400007409
4"
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
TW 1400007409
4"
SELECT
HELP
10/20/2014

CASCADE TEK

Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
TW 1400007409

4"

4

10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
TW 1400007409
Post Exposure
4
10/20/2014

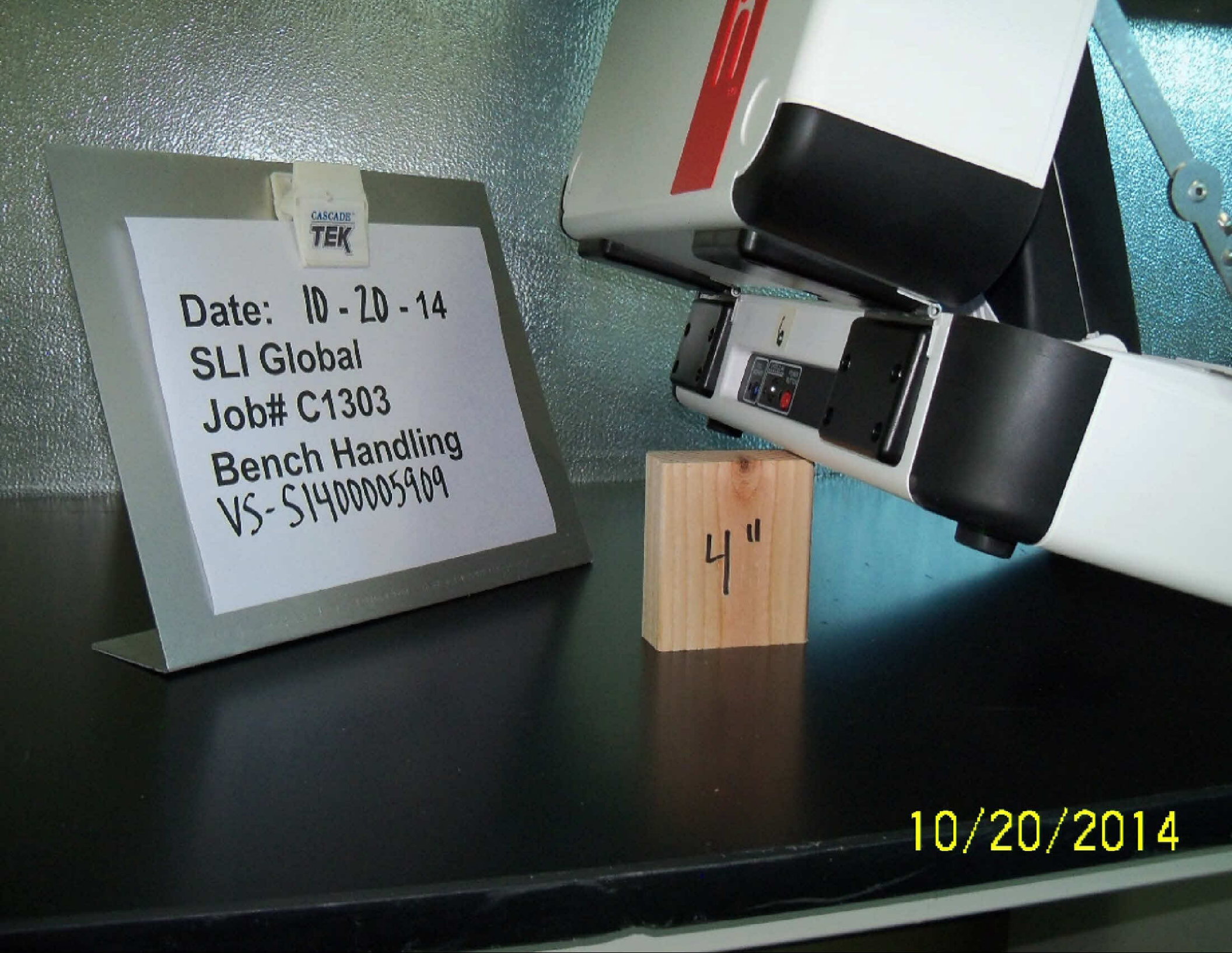

CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
TW 1400007409
Post Exposure
2
10/20/2014


Date: 10-20-14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
5
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
4"
5
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
4"
5
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
4
4"
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
4"
10/20/2014


CASCADE TEK
Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
Post Exposure
4
10/20/2014


Date: 10 - 20 - 14
SLI Global
Job# C1303
Bench Handling
VS-S1400005909
Post Exposure
10/20/2014

Vibration Test Log

Job Number: C1303
Customer: SLI Global

Date Started: 10/21/2014
Date Completed: 10/21/2014

Reviewing Engineer: David Bowles
Signature:

Responsible Technician: Tony Arbogast

Type of Vibration Test: Sine Sweep ☐ Resonant Search ☐ Resonant Dwell ☐
Random Vibration ☒ Random on Random Vibration ☐ Sine on Random ☐

Test Specification: SLI Global SOW (Ref: MIL-STD 810D, Method 514.3 Cat. 1)

Specimen Description: Packaged Verity Scan (1) & Verity Touch Writer (1)

Specimen P/N or Model No.	Specimen S/N
3005350/2005350(VS)	S1400005909 (21.25"x17.25"x20" at 35 lbs.)
3005352/2005352(VTW)	W1400007409 (21.25"x17.25"x20" at 36 lbs.)

Laboratory Temperature: +72°F
Laboratory Humidity: 29%RH

Operational: Yes ☐ No ☒

Computer Channel(s) Assignment(s)					
Channel No.	Control / Response	pC/g	mV/g	Accelerometer S/N	Notes
1	Control	11.52	10	0000050	
2	Control	11.48	10	0000135	
3					
4					
5					
6					
7					

Monitoring Equipment Set Up By: T. Arbogast
Fixture Property of: C-Tek

CTS Slip No.: N/A
Head Expander No.: N/A

Specified Test Requirements: Samples shall be subjected to the Basic transportation vibration tests outlined in Category 1. Sample shall be exposed to the vertical (1.045 GRMS) test for 30 minutes, the longitudinal (0.741 GRMS) test for 30 minutes, and the transverse (0.196 GRMS) test for 30 minutes. 2 control accelerometers shall be used during testing.

Vibration Test Log

Initials	Date	Time	Notes	Run	Photo
TA	10/21/2014	1230	Begin setup and programming test profiles on vibration table #1240. Customer on-site.		☐
TA	10/21/2014	1358	Setup in vertical axis is complete. Begin 30 minutes of vertical vibration (1.045 GRMS) exposure.	#1	☒
TA	10/21/2014	1432	Completed 30 minutes of vertical exposure. No external visible damage noted. Rotate the samples to longitudinal axis.		☐
TA	10/21/2014	1448	Setup in longitudinal axis is complete. Begin 30 minutes longitudinal vibration (0.741 GRMS) exposure.	#2	☒
TA	10/21/2014	1518	Completed 30 minutes of longitudinal exposure. No external visible damage noted. Rotate the samples to transverse axis.		☐
TA	10/21/2014	1527	Setup in transverse axis is complete. Begin 30 minutes of exposure at (0.196 GRMS).	#3	☒
TA	10/21/2014	1558	Completed 30 minutes of transverse exposure. No external visible damage noted. Take post exposure photos with the customer to perform post exposure operational testing as specified.		☒
TA	10/21/2014	1657	The customer reports that the sample are operating as specified with no damage noted. The samples will remain on-site for further testing and evaluation. Test Complete.		☐

DS7 - Vibration Equipment List

Job No.: C1303 **Date:** 10/21/2014

EQUIPMENT DESCRIPTION	MANUFACTURER	MODEL NUMBER	S/N	CAL NUMBER	LAST CALIBRATION	NEXT CALIBRATION
Vibration Shaker	Dynamic Solutions	DS-40000/23-180	041144	1240	Reference Only	
Shaker Amplifier	Dynamic Solutions	SA-180	041144	1240	Reference Only	
Vibration Controller	Vibration Research	VR9500	951147AF	FR146	11/25/13	11/30/14
Charge Amplifier	Endevco	133	AF46	FR136	06/18/14	06/30/15
Control Accelerometer	Endevco	2271AM25	0000135	FR295	04/24/14	04/30/15
Control Accelerometer	Endevco	2271AM25	0000050	FR294	04/24/14	04/30/15
Digital Temp / RH Meter	Cole Palmer	90080-03	130743098	FR446	03/07/14	03/31/16

CASCADE TEK TESTING SERVICES

Remaining: 0:00:00

Level: 0 dB

Job Number: C1303

At Level: 0:30:00

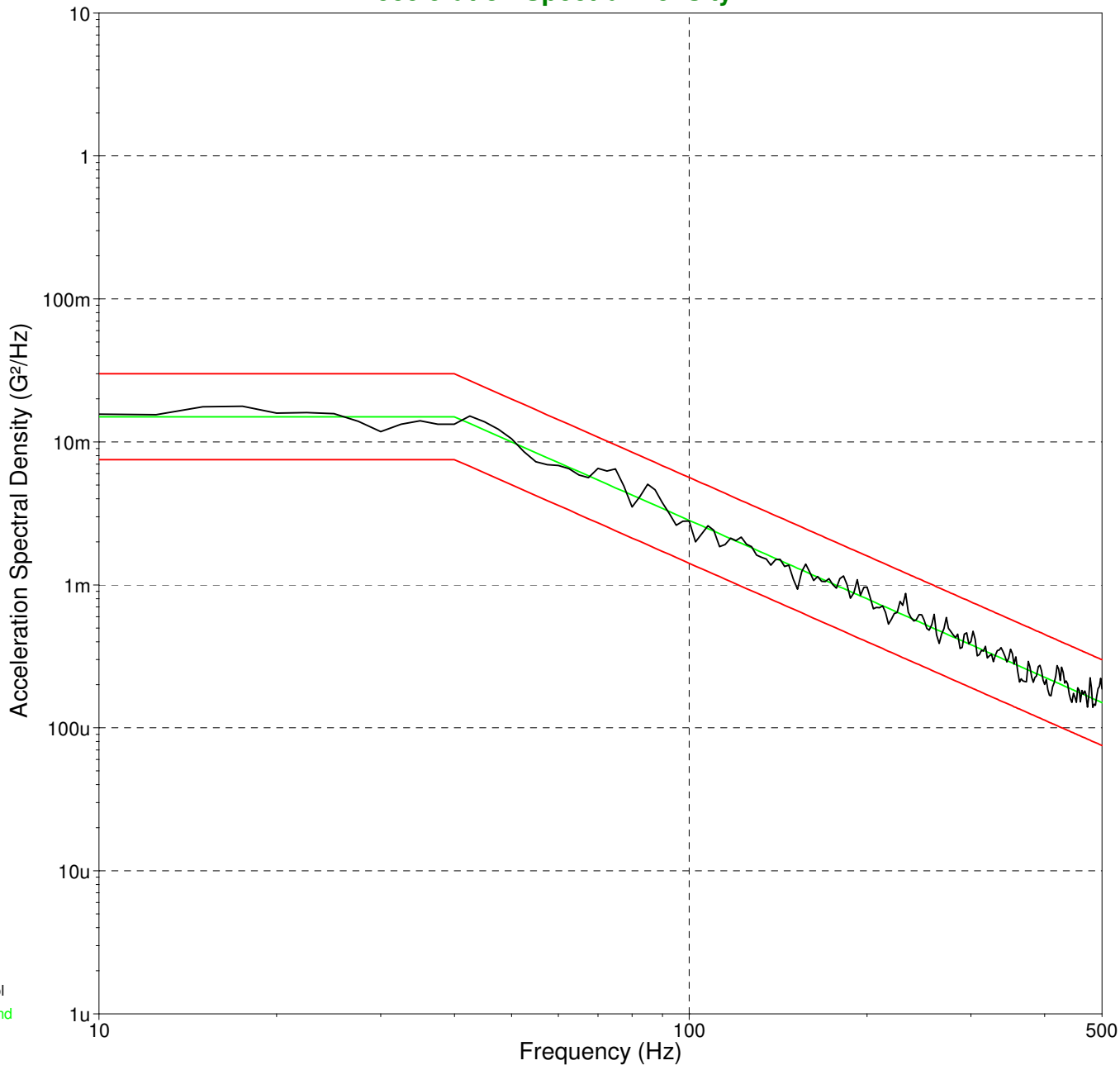
Demand: 1.052 G RMS

For Customer: SLI Global

Elapsed: 0:30:22

Control: 1.073 G RMS

Acceleration Spectral Density



Axis: Vertical

Start Time: Oct 21, 2014 13:58:18

Test Item(s): 2-Packaged Samples

End Time: Oct 21, 2014 14:28:39

S/N(s): Packaged Verity Scan (1) & Verity Touch Writer (1)

CASCADE TEK TESTING SERVICES

Remaining: 0:00:00

Level: 0 dB

Job Number: C1303

At Level: 0:30:00

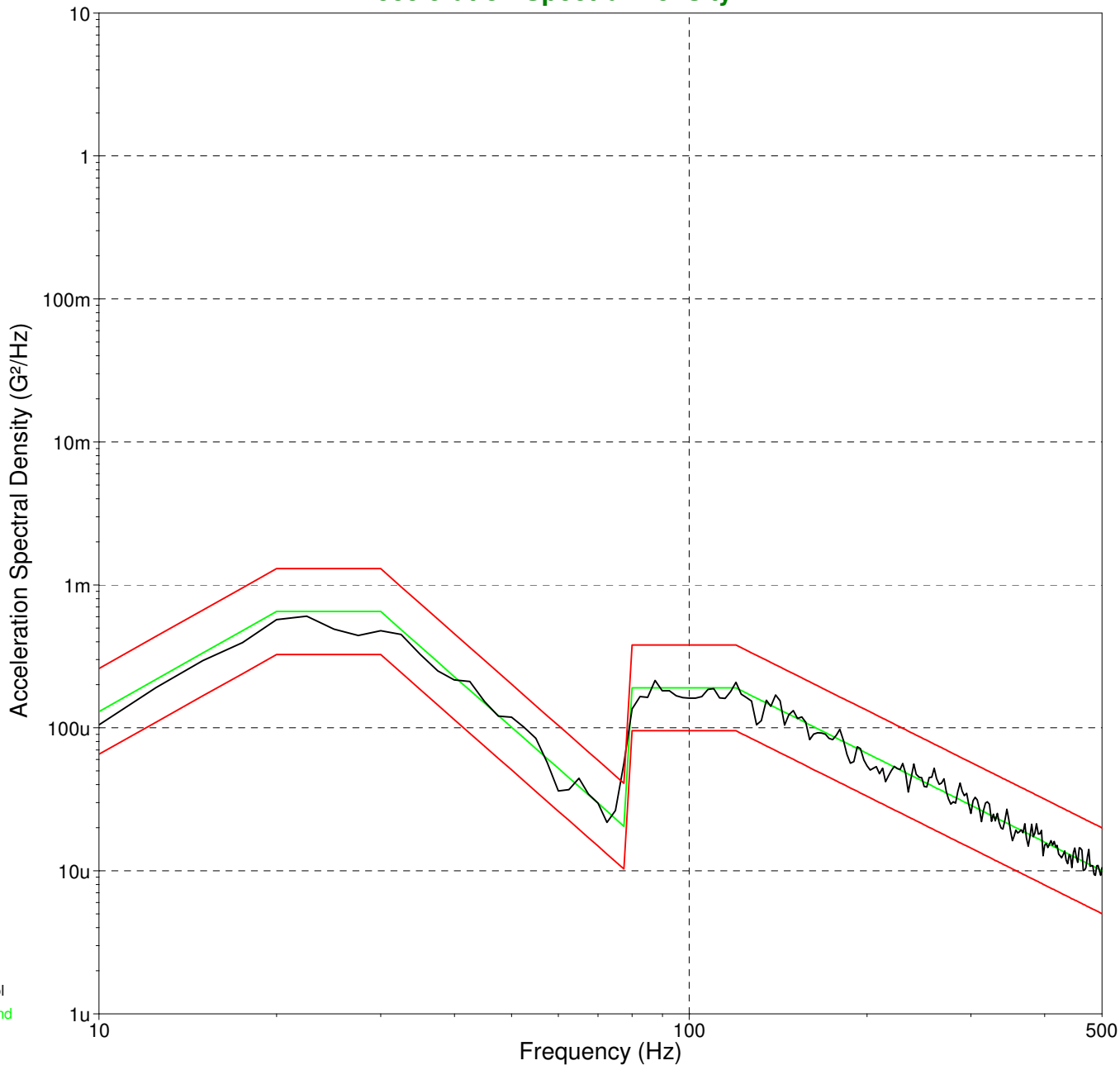
Demand: 0.2041 G RMS

For Customer: SLI Global

Elapsed: 0:30:24

Control: 0.196 G RMS

Acceleration Spectral Density



Axis: Longitudinal

Start Time: Oct 21, 2014 14:47:58

Test Item(s): 2-Packaged Samples

End Time: Oct 21, 2014 15:18:21

S/N(s): Packaged Verity Scan (1) & Verity Touch Writer (1)

CASCADE TEK TESTING SERVICES

Remaining: 0:00:00

Level: 0 dB

Job Number: C1303

At Level: 0:30:00

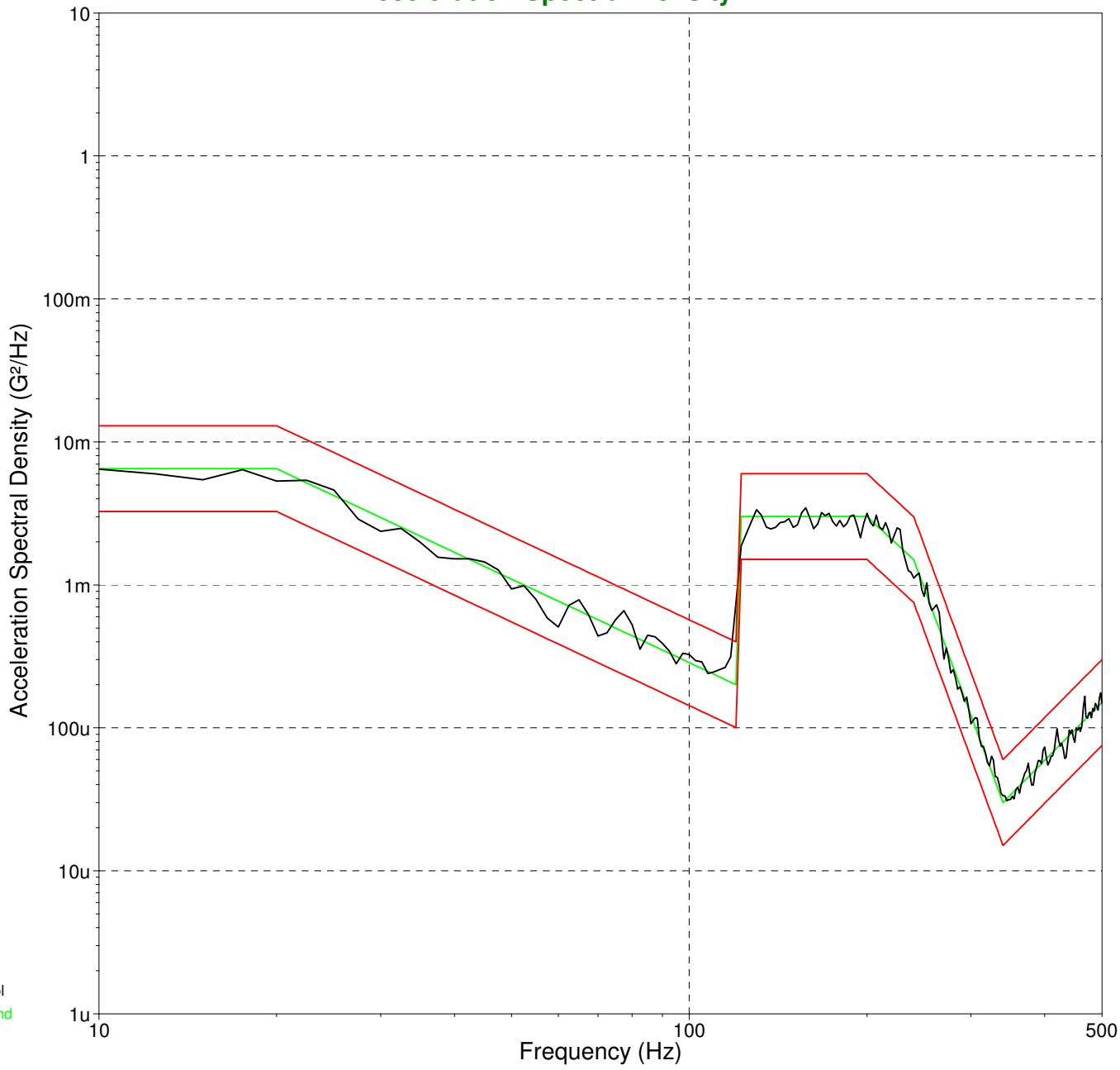
Demand: 0.745 G RMS

For Customer: SLI Global

Elapsed: 0:30:21

Control: 0.7344 G RMS

Acceleration Spectral Density



Axis: Transverse

Start Time: Oct 21, 2014 15:27:20

Test Item(s): 2-Packaged Samples

End Time: Oct 21, 2014 15:57:41

S/N(s): Packaged Verity Scan (1) & Verity Touch Writer (1)


Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Axis: Vertical
10/21/2014


CASCADE TEK
Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Axis: Vertical
10/21/2014


CASCADE TEK
Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Axis: Longitudinal
afp
VERITY CARTON
10/21/2014


CASCADE TEK
Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Axis: Longitudinal
10/21/2014


TEK
Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Axis: Transverse
TW
10/21/2014


Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Axis: Transverse
10/21/2014


Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Post Exposure
10/21/2014


Date: 10 - 21 - 14
SLI Global
Job# C1303
Vibration
Post Exposure
10/21/2014

Test Data Log

Job Number: C1303
Customer: SLI Global

Date Started: 10/22/2014
Date Completed: 10/22/2014

Reviewing Engineer: David Bowles
Signature:

Responsible Technician: Tony Arbogast

Type of Test: Low Temperature Storage
Test Specification: SLI Global SOW Section 4.3.6.2 Ref: MIL-STD-810D, Method 502.2, and Procedure I - Storage

Specimen Description: Packaged Verity Scan (1) & Verity Touch Writer (1)

Specimen P/N or Model No.	Specimen S/N
3005350/2005350(VS)	S1400005909 (21.25"x17.25"x20" at 35 lbs.)
3005352/2005352(VTW)	W1400007409 (21.25"x17.25"x20" at 36 lbs.)

Laboratory Temperature: +76°F

Laboratory Humidity: 30%RH

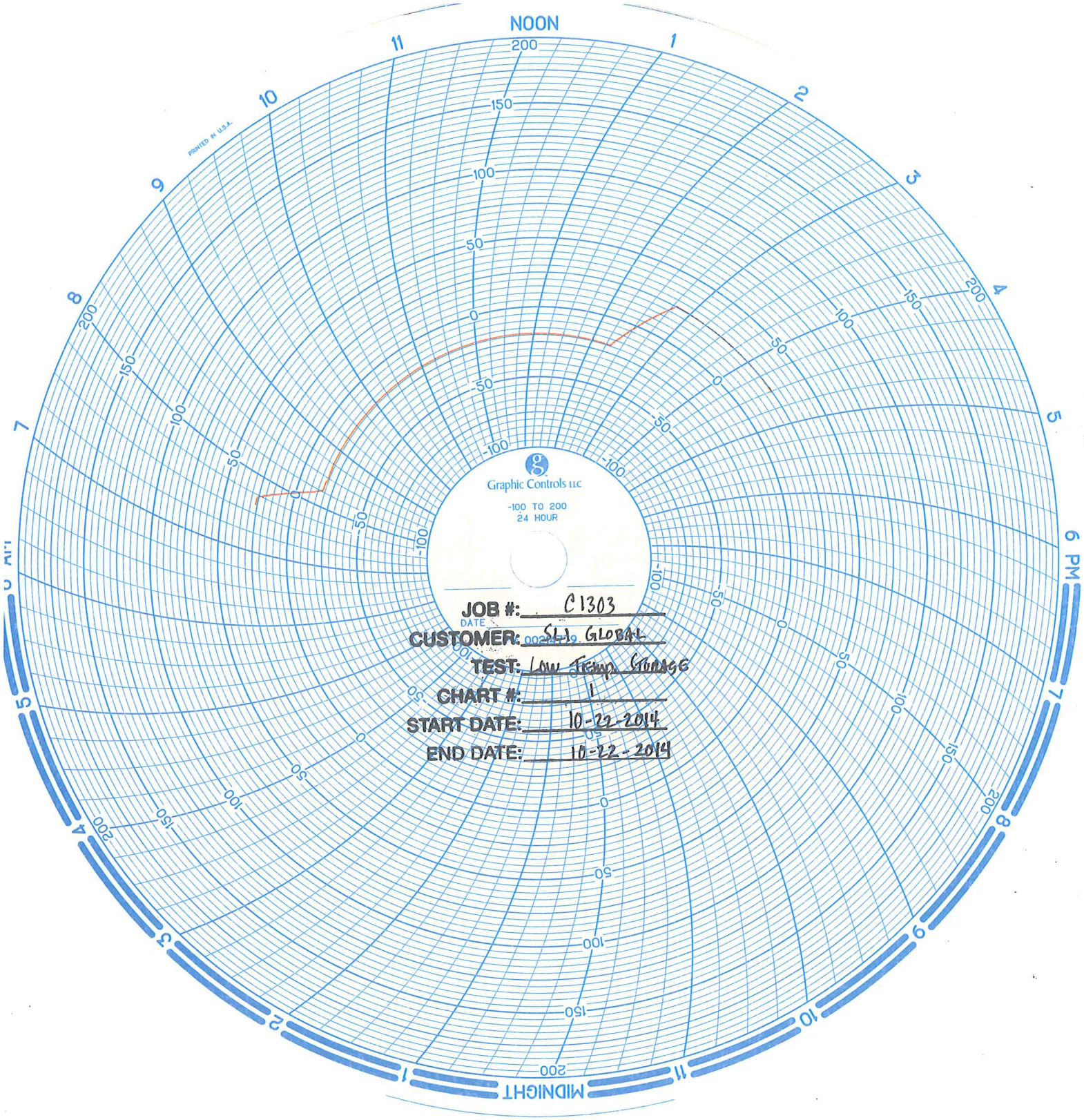
Test Description: Expose the samples to -20°C (-4°F) and allow to stabilize. Then maintain for a period of 4 hours at -20°C. Transition back to ambient temperature and hold conditions. The customer will arrive on-site and perform post exposure operational testing as specified. Transition rates to be set at 10°F/minute.

Initials	Date	Time	Notes	Photo
TA	10/22/2014	0714	Begin setup of the samples for exposure in chamber #1236.	☐
TA	10/22/2014	0743	Setup is complete. Begin 30 minute transition to -20°C with the O.T. protection set at -30°C and +50°C.	☒
TA	10/22/2014	0813	Begin 2 hour stabilization period at -20°C.	☐
TA	10/22/2014	1014	Begin 4 hour (minimum) soak at -20°C as specified	☐
TA	10/22/2014	1418	Begin 30 minute transition of the chamber to ambient temperature (+25°C)	☐
TA	10/22/2014	1450	The chamber is at +25°C and hold final condition.	☐
GM	10/22/2014	1630	The customer is on-site. Remove the samples and perform post exposure operational testing and visual inspections. Photos taken.	☒
GM	10/22/2014	1655	The customer reports that both of the samples are operating as specified with no visible damage noted. Test Complete.	☐

DS2 - Test Equipment List

Test: Low Temperature Storage **Job Number:** C1303 **Date:** 10/22/2014

Test Equipment List						
Equipment Description	**Manufacturer**	**Model**	**S/N**	**Cal No.**	**Calibrated Date (mm/dd/yy)**	**Calibration Due Date (mm/dd/yy)**
Environmental Chamber	Thermotron	SM-32C	26154	1236	10/07/13	10/31/14
Digital Temp / RH Meter	Cole Palmer	90080-03	130033077	FR417	03/27/13	03/27/15


NOON
MIDNIGHT
6 PM
Graphic Controls LLC
-100 TO 200
24 HOUR
PRINTED IN U.S.A.
JOB #: C1303
DATE
CUSTOMER: SLI GLOBAL
TEST: Low Temp. Gauge
CHART #: 1
START DATE: 10-22-2014
END DATE: 10-22-2014


Date: 10-22-14
SLI Global
Job# C1303
Low Temperature
10/22/2014


CASCADE TEK
Date: 10-22-14
SLI Global
Job# C1303
Low Temperature
Post Exposure
10/22/2014


Date: 10-22-14
SLI Global
Job# C1303
Low Temperature
Post Exposure
10/22/2014

Test Data Log

Job Number: C1303
Customer: SLI Global

Date Started: 10/23/2014
Date Completed: 10/23/2014

Reviewing Engineer: David Bowles
Signature: 

Responsible Technician: Tony Arbogast

Type of Test: High Temperature Storage
Test Specification: SLI Global SOW Section 4.3.7.2 Ref: MIL-STD-810D, Method 501.2, and Procedure I - Storage

Specimen Description: Packaged Verity Scan (1) & Verity Touch Writer (1)

Specimen P/N or Model No.	Specimen S/N
3005350/2005350(VS)	S1400005909 (21.25"x17.25"x20" at 35 lbs.)
3005352/2005352(VTW)	W1400007409 (21.25"x17.25"x20" at 36 lbs.)

Laboratory Temperature: +75°F
Laboratory Humidity: 27%RH

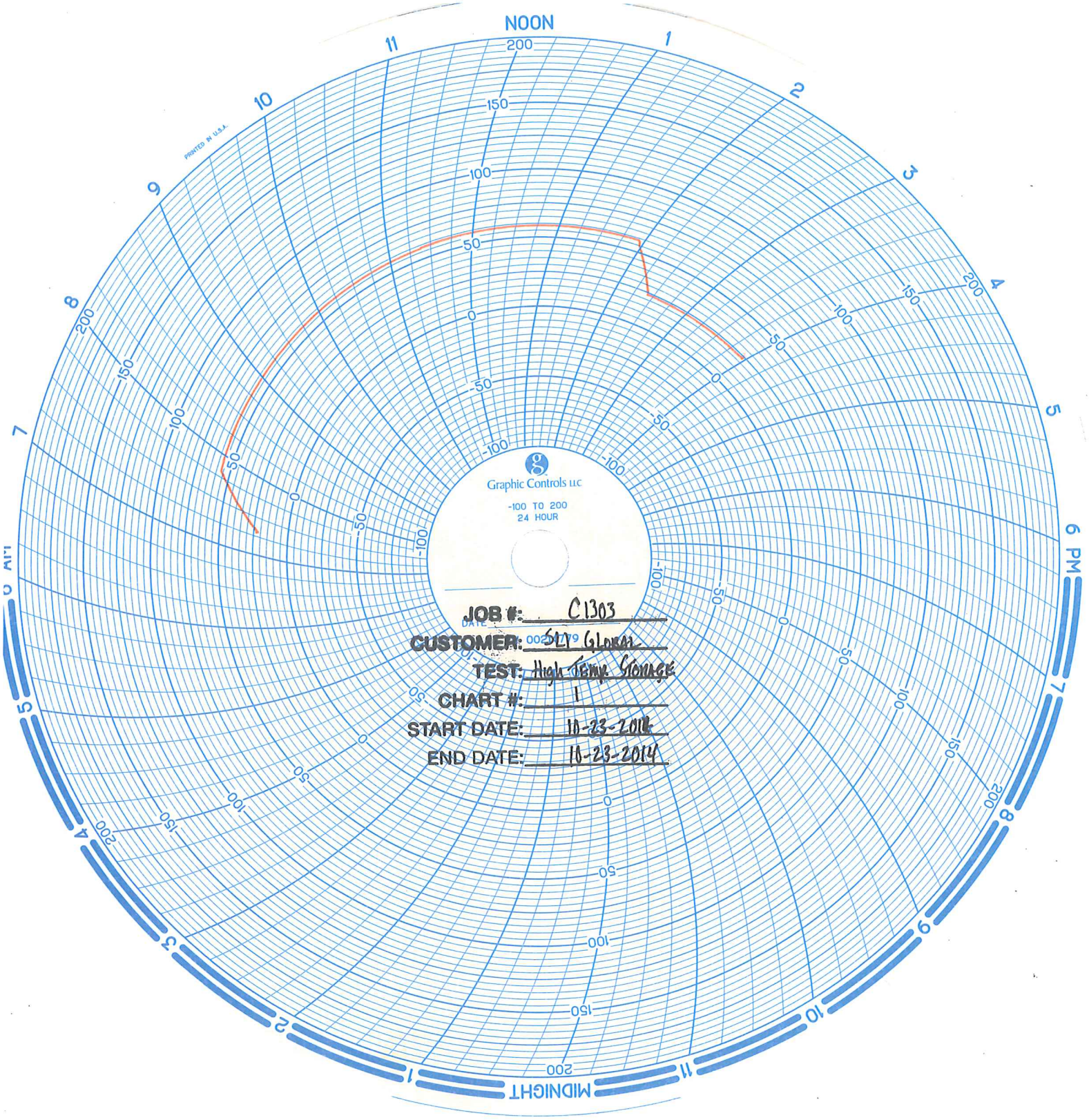
Test Description: Expose the samples to +60°C (+140°F) and allow to stabilize. Then maintain for a period of 4 hours at +60°C. Transition back to ambient temperature and hold conditions. The customer will arrive on-site and perform post exposure operational testing as specified. Transition rates to be set at 10°F/minute.

Initials	Date	Time	Notes	Photo
TA	10/23/2014	0710	Begin setup of the samples for exposure in chamber #1236.	☐
TA	10/23/2014	0720	Setup is complete. Begin 30 minute transition to +60°C with the O.T. protection set at 0°C and +70°C.	☒
TA	10/23/2014	0751	Begin 2 hour stabilization period at +60°C.	☐
TA	10/23/2014	0951	Begin 4 hour (minimum) soak at +60°C as specified	☐
TA	10/23/2014	1356	Begin 30 minute transition of the chamber to ambient temperature (+25°C)	☐
TA	10/23/2014	1426	The chamber is at +25°C and hold final condition.	☐
KH	10/23/2014	1555	The customer is on-site. Remove the samples and perform post exposure operational testing and visual inspections. Photos taken.	☒
KH	10/23/2014	1635	The customer reports that both of the samples are operating as specified with no visible damage noted. Test Complete.	☐

DS2 - Test Equipment List

Test: High Temperature Storage Job Number: C1303 Date: 10/23/2014

Test Equipment List						
Equipment Description	**Manufacturer**	**Model**	**S/N**	**Cal No.**	**Calibrated Date (mm/dd/yy)**	**Calibration Due Date (mm/dd/yy)**
Environmental Chamber	Thermotron	SM-32C	26154	1236	10/07/13	10/31/14
Digital Temp / RH Meter	Cole Palmer	90080-03	130033077	FR417	03/27/13	03/27/15


NOON
6 PM
MIDNIGHT
Graphic Controls LLC
-100 TO 200
24 HOUR
JOB #: C1303
CUSTOMER: SLP Global
TEST: High Temp Storage
CHART #: 1
START DATE: 10-23-2014
END DATE: 10-23-2014


CASCADE TEK
Date: 10-23-14
SLI Global
Job# C1303
High Temperature
10/23/2014


TEK
Date: 10-23-14
SLI Global
Job# C1303
High Temperature
Post Exposure
10/23/2014
CAUTION

Test Data Log

Job Number: C1303
Customer: SLI Global

Date Started: 10/13/2014
Date Completed: 10/27/2014

Reviewing Engineer: David Bowles
Signature:

Responsible Technician: Tony Arbogast

Type of Test: Humidity
Test Specification: SLI Global SOW Section 4.3.8.2 (Ref: MIL-STD 810D Method 507.2 Procedure I)

Specimen Description: Verity Packaged Samples (2)

Specimen P/N or Model No.	Specimen S/N
(Verity Scan) 2005350 Rev. B	S1400005009
(Verity Touch Writer) 20005352 Rev. B	W1400006609

Laboratory Temperature: +74°F

Laboratory Humidity: 25%RH

Test Description: Expose the non-operating samples to a minimum of 24 hours at +23°C and 50%RH. Then transition the chamber to 31°C and 88%Rh and stabilize (2 hours). Then begin (10) 24 hour temperature & humidity cycles per Figure 3. Upon completion of 5 cycles the customer will remove the samples and perform operational status test as specified. If the sample passes operational testing then return them to the chamber and continue with the remaining five cycles. Upon completion of the testing the customer will remove the samples and perform operational testing and evaluation of the samples

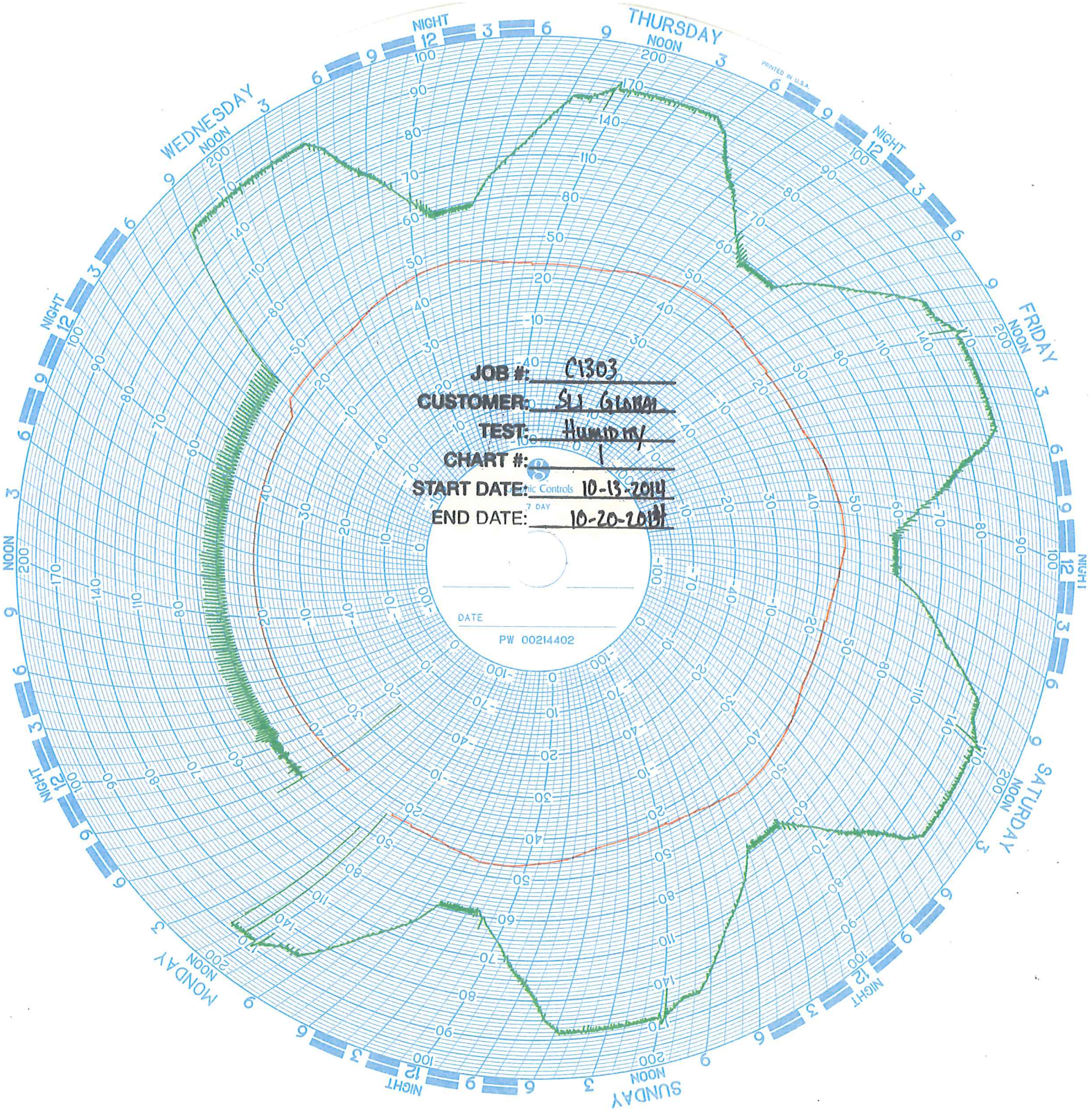
Initials	Date	Time	Notes	Photo
TA	10/13/2014	1719	Begin setup of the samples and chamber #1204 for exposure.	☐
TA	10/13/2014	1900	Setup is complete. Begin 36 hour hold at +23°C & 50%RH. O.T. protection is set at 0°C and +55°C.	☒
KH	10/14/2014	0815	Continue hold at +23.2°C & 48.7%RH with O.T. protection set at 0°C and +55°C.	☐
KH	10/14/2014	1730	Continue +23.2°C & 49.6%RH exposure with the chamber holding conditions.	☐
KH	10/15/2014	0650	The chamber is to begin 1 hour transition to +31°C & 88%RH in approx. 20 minutes. The chamber will then stabilize for a period of 2 hours. Followed by 10 24 hour cycles as specified.	☐
KH	10/15/2014	1630	Continue exposure with the chamber currently at +30.9°C & 88.4%RH.	☐
KH	10/16/2014	0700	The chamber is at +34.5°C & 77.4%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
KH	10/16/2014	1700	Continue exposure with the chamber currently at +31.6°C & 86.4%RH.	☐
KH	10/17/2014	0650	The chamber is at +35.2°C & 76.1%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐

Initials	Date	Time	Notes	Photo
TA	10/17/2014	1653	Continue exposure with the chamber currently at +33°C & 81%RH.	☐
KH	10/18/2014	1410	The chamber is at +31.1°C & 88.5%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
KH	10/19/2014	1420	The chamber is at +30.9°C & 88.2%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
TA	10/20/2014	0705	The chamber is at +34°C & 77%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C. Changed the chart paper.	☐
TA	10/20/2014	1118	The customer is on-site and opened the chamber for end of the 5th cycle functional testing (+31C & 88%RH).	☐
TA	10/20/2014	1218	The customer reports that the sample are operating as specified. Return the samples to the chamber and continue with remaining humidity cycles.	☐
TA	10/20/2014	1622	Continue exposure with the chamber currently at +31°C & 88%RH.	☐
TA	10/21/2014	0745	The chamber is at +36°C & 71%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
TA	10/21/2014	1635	Continue exposure with the chamber currently at +31°C & 88%RH.	☐
TA	10/22/2014	0759	The chamber is at +36°C & 72%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
TA	10/23/2014	0746	The chamber is at +36°C & 70%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
TA	10/23/2014	1607	Continue exposure with the chamber currently at +31°C & 88%RH.	☐
TA	10/24/2014	0756	The chamber is at +36°C & 71%RH and continuing humidity cycling exposure. O.T. protection is set at 0°C and +55°C.	☐
TA	10/24/2014	1610	Continue exposure with the chamber currently at +31°C & 88%RH.	☐
TA	10/26/2014	0750	The chamber is at +23°C & 30%RH with humidity cycling exposure complete. The chamber is holding at ambient conditions with O.T. protection is set at 0°C and +55°C.	☐
TA	10/27/2014	0745	The chamber is at +23°C & 30%RH with O.T. protection is set at 0°C and +55°C.	☐
KH	10/27/2014	0815	The customer is on-site and to remove the samples from the chamber and perform post exposure inspection and operational testing.	☒
TA	10/27/2014	0945	The customer reports no damage and the samples are operating as specified. Test Complete.	☐

DS2 - Test Equipment List

Test: Humidity **Job Number:** C1303 **Date:** 10/13/2014

Test Equipment List						
Equipment Description	**Manufacturer**	**Model**	**S/N**	**Cal No.**	**Calibrated Date (mm/dd/yy)**	**Calibration Due Date (mm/dd/yy)**
Environmental Chamber	Thermotron	SE-1200-5	31051	1204	02/11/14	02/11/15
Digital Temp / RH Meter	Cole Palmer	90080-03	130033077	FR417	03/27/13	03/31/15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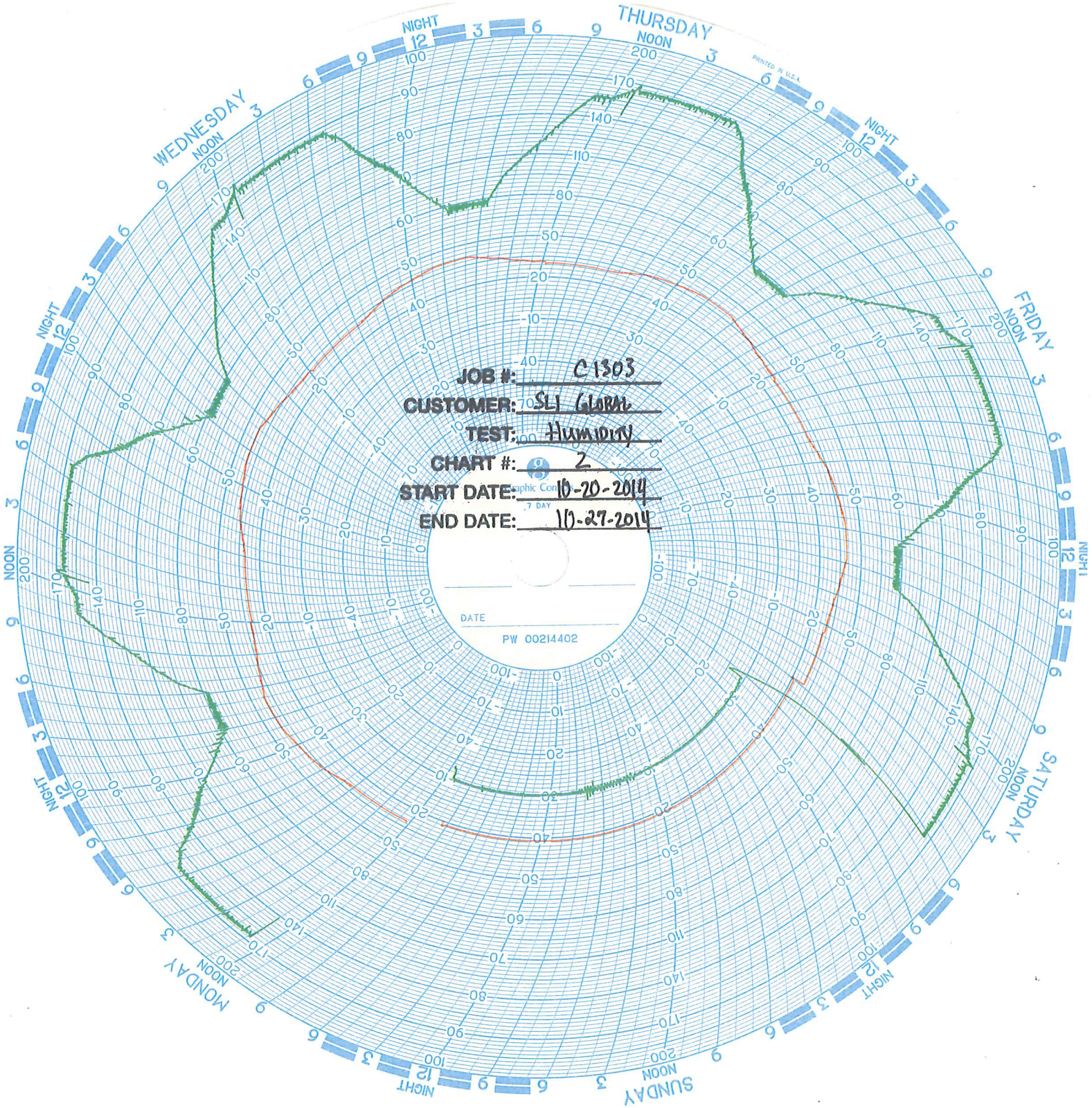
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NIGHT
NOON
JOB #: C1303
CUSTOMER: SLI Global
TEST: Humidity
CHART #: 1
START DATE: 10-13-2014
END DATE: 10-20-2014
7 DAY
DATE
PW 00214402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CUSTOMER: SLI Global
TEST: Humidity
CHART #: 2
START DATE: 10-20-2014
END DATE: 10-27-2014
DATE
PW 00214402
7 DAY
PRINTED IN U.S.A.
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NIGHT
NOON


FW
S
AG FNLA
CASCADE TEK
Date: 10-13 -14
SLI Global
Job# C1303
Humidity
10/13/2014


Tenney
(800) 586-2473
www.tenneyenv.com
Date: 10-27-2014
Job: C1303
SLI Global
Humidity
Post Exposure
AG FNLA
10/27/2014


First Aid
Employee Rights
Tenney
Date: 10-27-2014
Job: C1303
SLI Global
Humidity
Post Exposure
10/27/2014


Tenney
(800) 586-2473
www.tenneyenv.com
Date: 10-27-2014
Job: C1303
SLI Global
Humidity
Post Exposure
Menu
Help
Enter Open Polls Code
Cancel
Accept
8:52 AM
10/27/2014


Setting Up Election...
Please wait
8:56 AM
Tonney
(800) 586-2473
www.tenneyenv.com
Date: 10-27-2014
Job: C1303
SLI Global
Humidity
Post Exposure
10/27/2014

Test Data Log

Job Number: C1303
Customer: SLI Global

Date Started: 10/13/2014
Date Completed: 10/17/2014

Reviewing Engineer: David Bowles
Signature:

Responsible Technician: Tony Arbogast

Type of Test: Temperature/Power Variation (Operating, 1st Configuration)
Test Specification: SLI Global SOW Section 4.4.3 Ref: MIL-STD-810-D, Method 502.2 and Method 501.2

Specimen Description: Verity Scan (2), Ballot Box (2), Verity Touch Writer (2), Standard Booth (1), Accessible Booth (1) and Printer (2)

Specimen P/N or Model No.	Specimen S/N
3005350/2005350 (VS)	S1400005909, S1400005809
2005357 (Ballot Box)	X14000102
3005352/2005352 (VTW)	W1400007609, W1400007409
2005358 (Standard Booth)	M14000102
5005359 (Accessible Booth)	L14000102
431d Printers	AK47007782A0, AK47007784A0

Laboratory Temperature: +75°F
Laboratory Humidity: 26%RH

Test Description: Expose the operating samples to 85 hours of temperature variation/power cycling (per Figure 5). Sample operation, power cycling and monitoring will be performed by the customer during the entire testing period. Temperature extremes of +50°F (+10°C), +95°F (+35°C) and ambient lab conditions.

Initials	Date	Time	Notes	Photo
TA	10/13/2014	0806	The customer is on-site and to begin set-up of the operating and monitoring equipment for the testing.	☐
TA	10/13/2014	2027	Resume set-up of the samples 10/14/2014. The samples will remain in ambient lab conditions (non-operating).	☐
MB	10/14/2014	0800	The customer is on-site and to resume set-up of the operating and monitoring equipment for the testing (chamber #1204).	☐
MB	10/14/2014	0830	The input voltage is set at 117Vac.	☐
MB	10/14/2014	0840	Seal the chamber and set the temperature to +10°C (+50°F). The over/under temperature protection is set at +60°C and 0°C.	☒
KH	10/14/2014	1242	Set the input voltage to 105Vac. The chamber temperature is at +10°C. Continue the exposure.	☐
KH	10/14/2014	1640	Set the input voltage to 129Vac. The chamber temperature is at +10°C. Continue the exposure.	☐
TA	10/14/2014	1730	Continue +10°C exposure with the samples powered on at 129Vac.	☐
TA	10/14/2014	2010	Continue +10°C exposure with the samples powered on at 117Vac.	☐

Initials	Date	Time	Notes	Photo
TA	10/14/2014	2040	Ramp the chamber to +35°C (+95°F) with the samples powered on at 117Vac (1st 12 hour cycle is complete).	☐
TA	10/14/2014	2045	Begin the 2nd 12 hour cycle at +35°C and 117Vac.	☐
TA	10/15/2014	0045	Set the input voltage to 105Vac. The chamber temperature is at +35°C.	☐
TA	10/15/2014	0445	Continue +35°C exposure with the samples powered on at 129Vac.	☐
MB	10/15/2014	0815	Continue +35°C exposure with the samples powered on at 117Vac.	☐
MB	10/15/2014	0845	Ramp the chamber to +10°C with the samples powered on at 117Vac (1st 24 hour cycle is complete). The over/under temperature protection is set at +60°C and 0°C.	☐
TA	10/15/2014	2040	Continue +10°C exposure with the samples powered on at 117Vac.	☐
TA	10/16/2014	2110	Ramp the chamber to +35°C (+95°F) with the samples powered on at 117Vac (3rd 12 hour cycle is complete).	☐
TA	10/16/2014	2120	Begin the 4th 12 hour cycle at +35°C and 117Vac.	☐
TA	10/16/2014	0120	Set the input voltage to 105Vac. The chamber temperature is at +35°C.	☐
TA	10/16/2014	0520	Continue +35°C exposure with the samples powered on at 129Vac The over/under temperature protection is set at +60°C and 0°C.	☐
KH	10/16/2014	0850	Continue +35°C exposure with the samples powered on at 117Vac.	☐
KH	10/16/2014	0920	2-24 hour cycles have been completed. Begin transition of the chamber to +23°C while the samples are powered on at 117Vac.	☐
TA	10/16/2014	1730	Continue ambient lab condition exposure with the customer on-site. The samples powered on at 117Vac while at ambient lab conditions.	☐
TA	10/17/2014	0500	Continue ambient lab conditions exposure with the samples powered on at 117Vac.	☐
TA	10/17/2014	1735	Continue ambient lab condition exposure with the customer on-site. The samples powered on at 117Vac while at ambient lab conditions.	☐
TA	10/17/2014	2215	The customer reports that the samples are operating as specified. No visible damage to the samples noted. The samples will be returned to the customer for final disposition. Test Complete.	☐

DS2 - Test Equipment List

Test: Temperature/Power Variation **Job Number:** C1303 **Date:** 10/13/2014

Test Equipment List						
Equipment Description	**Manufacturer**	**Model**	**S/N**	**Cal No.**	**Calibrated Date (mm/dd/yy)**	**Calibration Due Date (mm/dd/yy)**
Walk In Temperature/Humidity Chamber	Espec	EWPX823-30CW	358174	1267	07/01/14	07/01/15
Digital Temp / RH Meter	Cole Palmer	90080-03	130033077	FR417	03/27/13	03/31/15
Variac Power Control	Staco Energy Prod Co	251OCT	N/A	FR491	Reference Only	
Digital Volt Meter	Fluke	75	37770341	FR235	05/16/14	05/31/15

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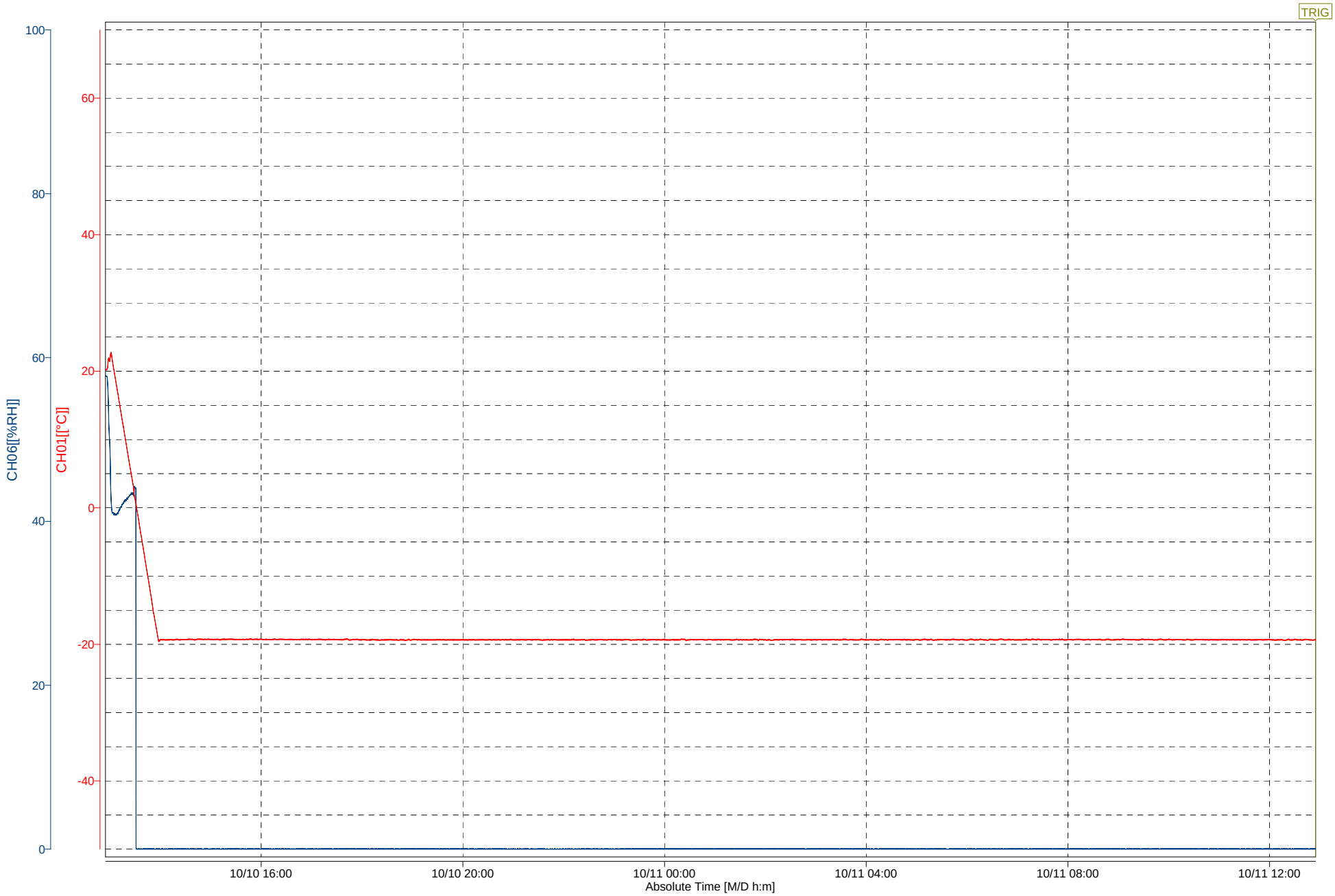

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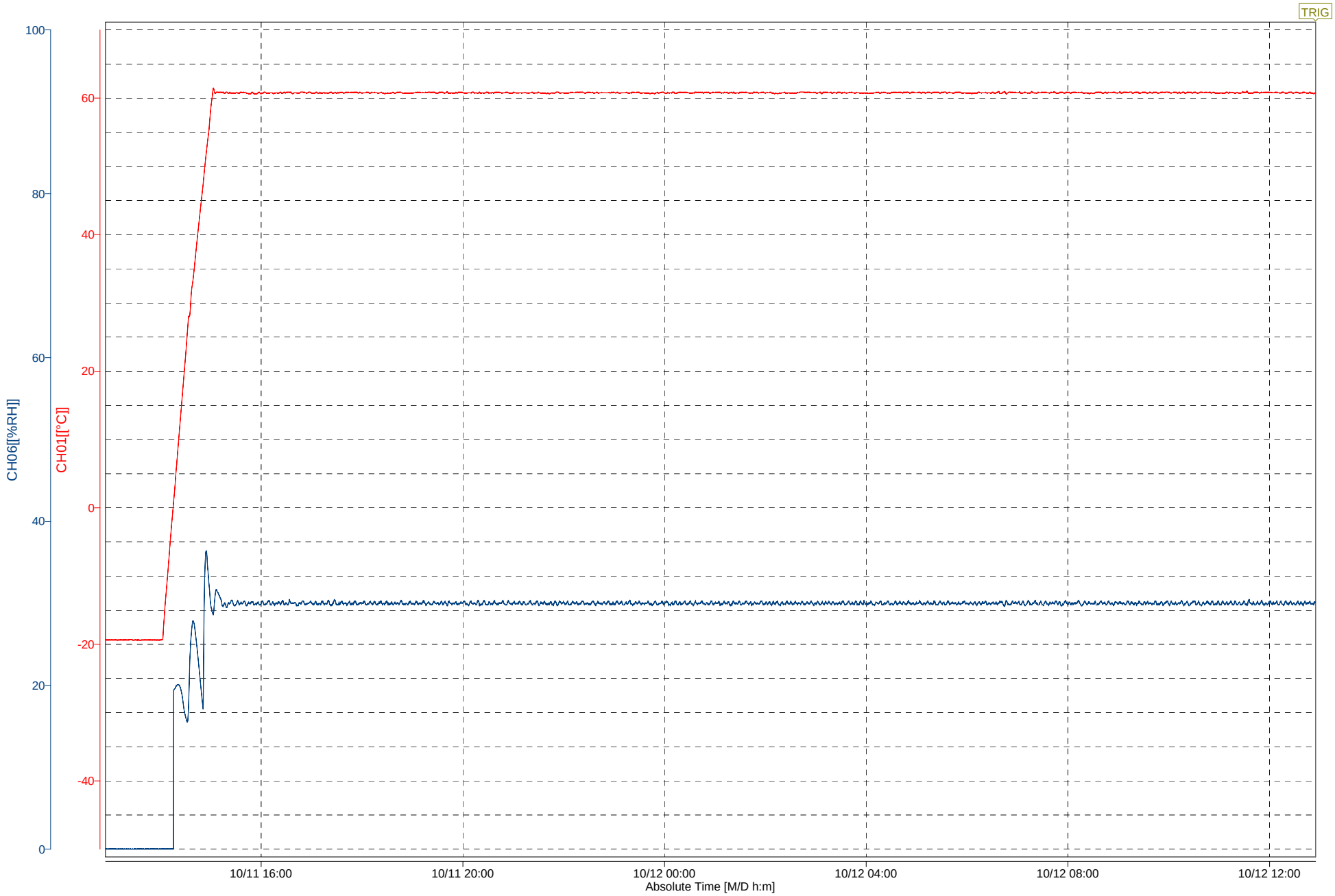

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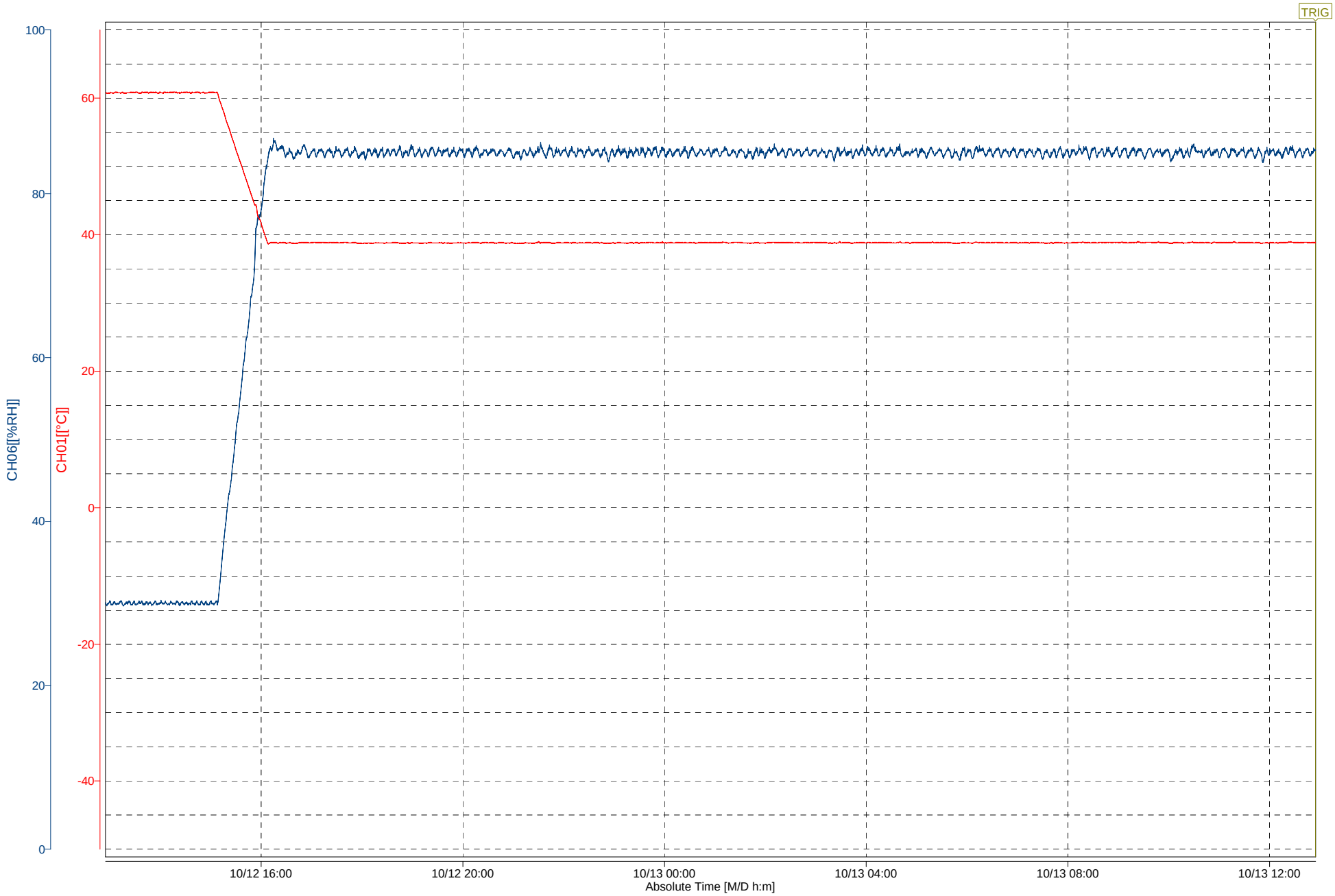

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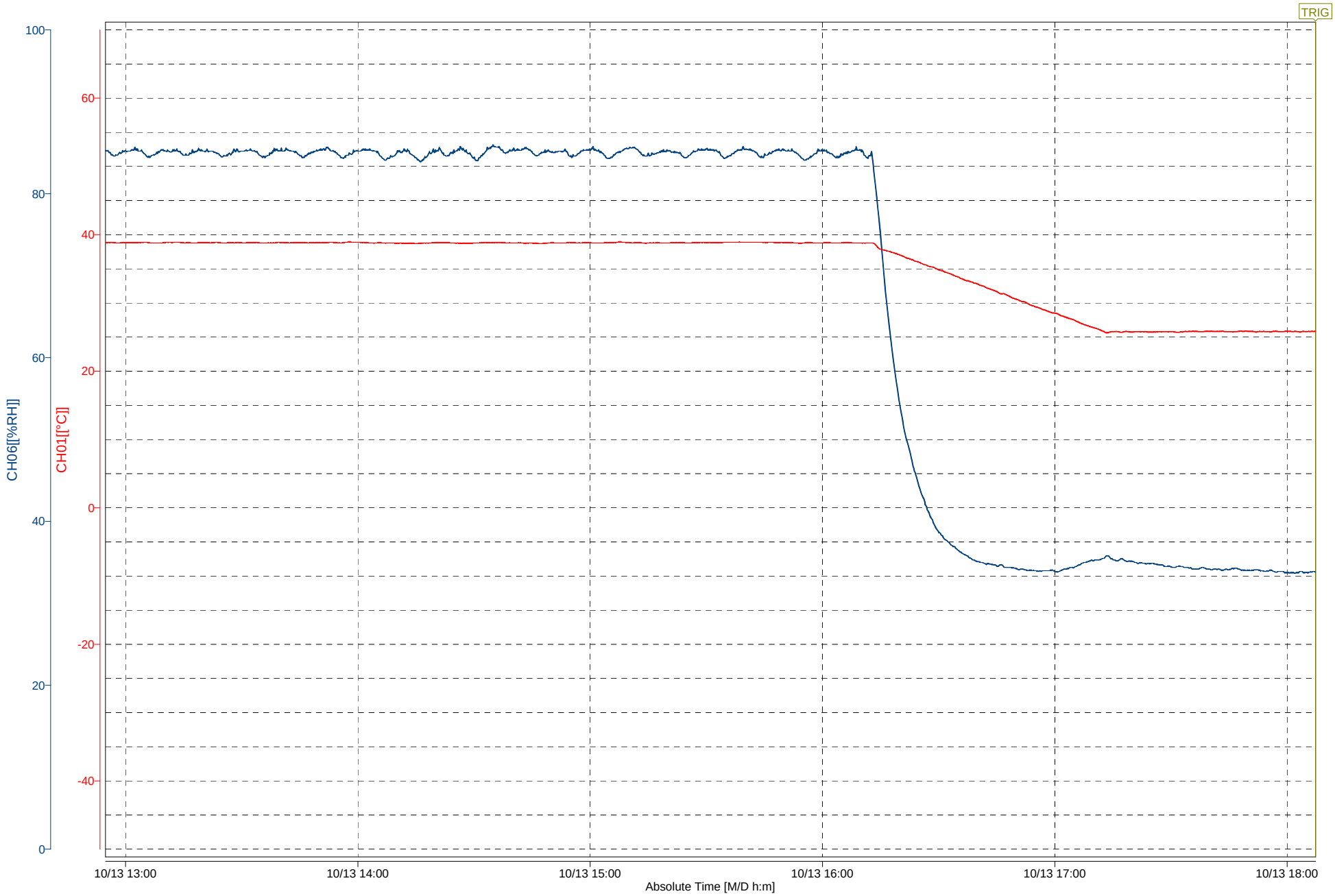

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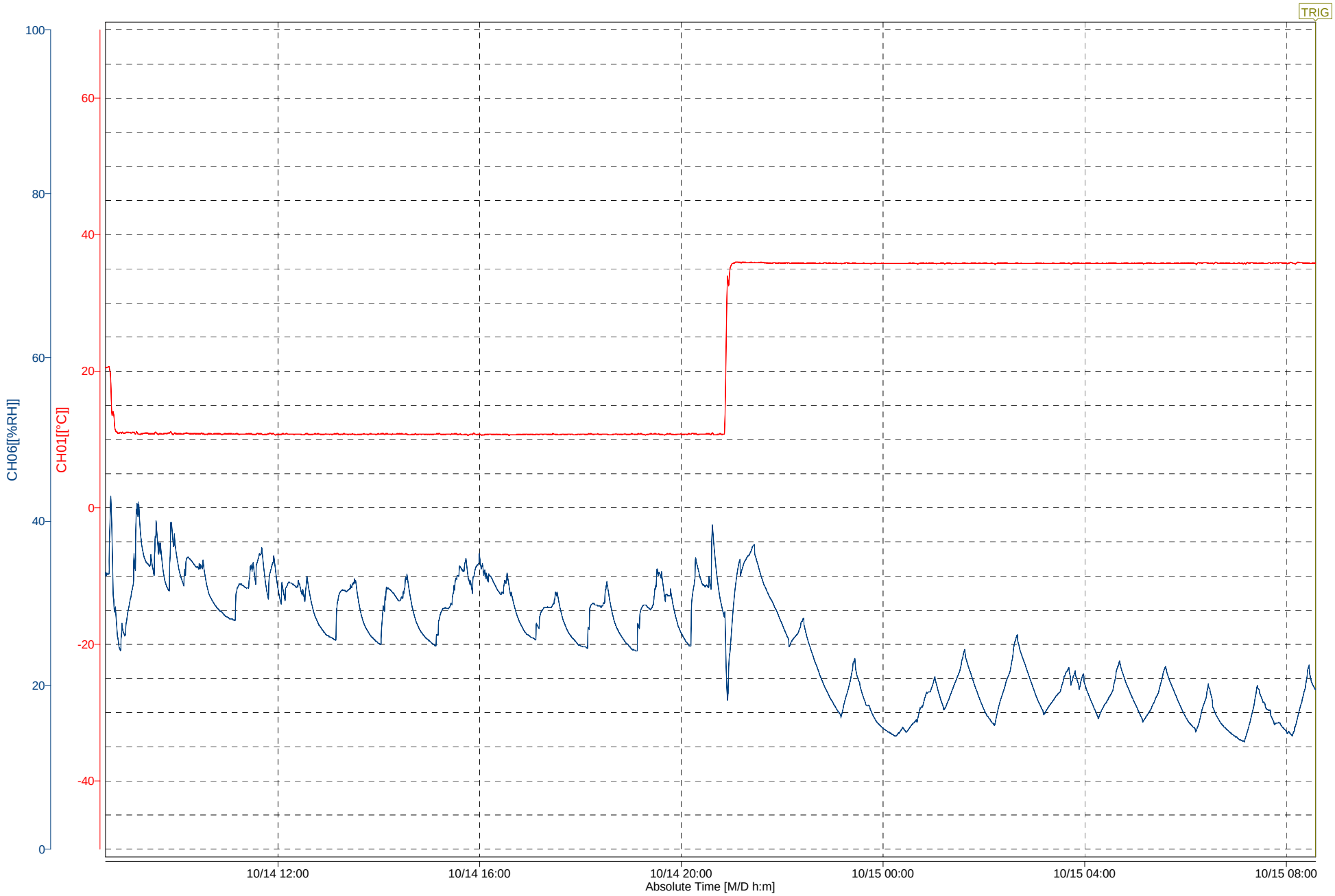

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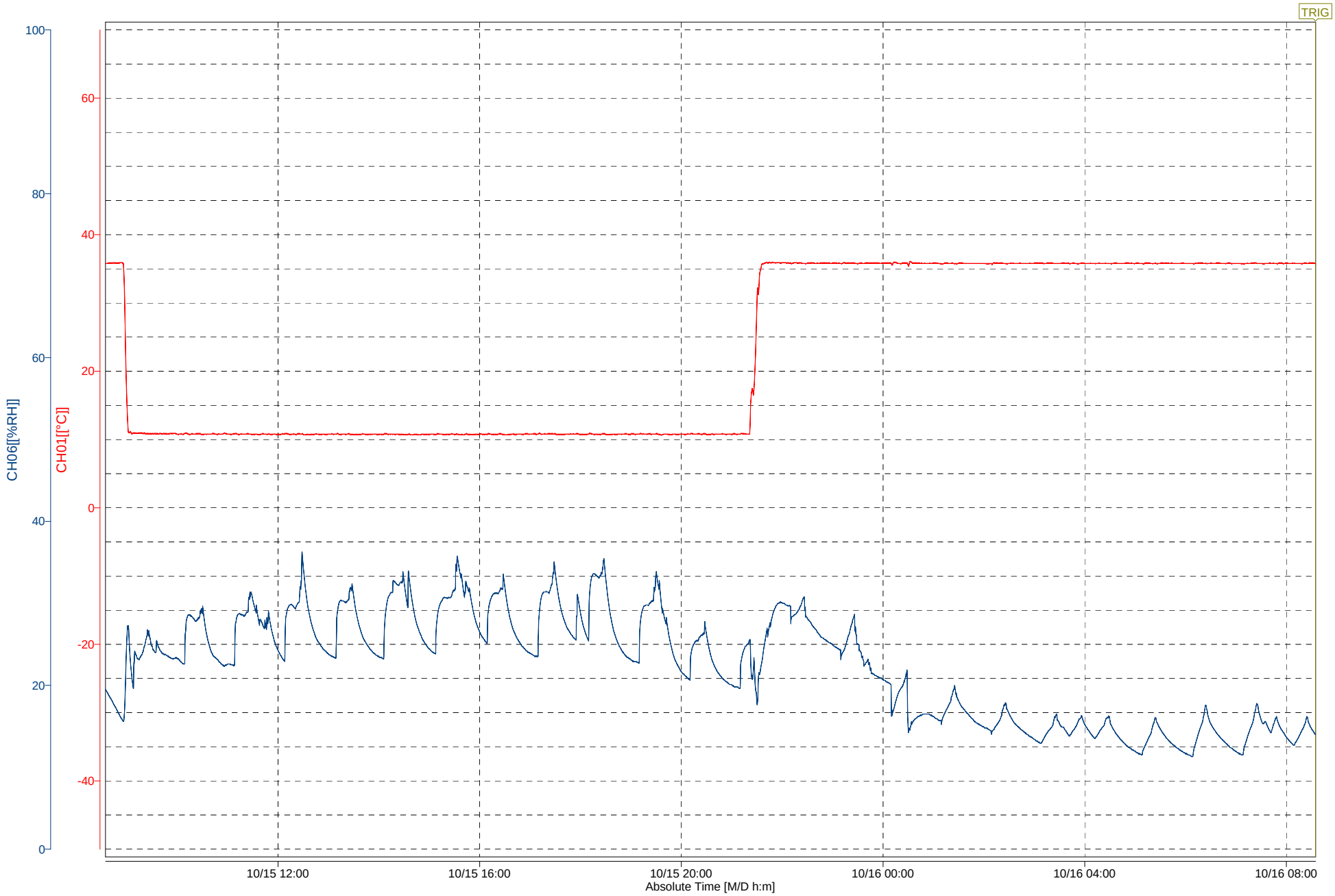

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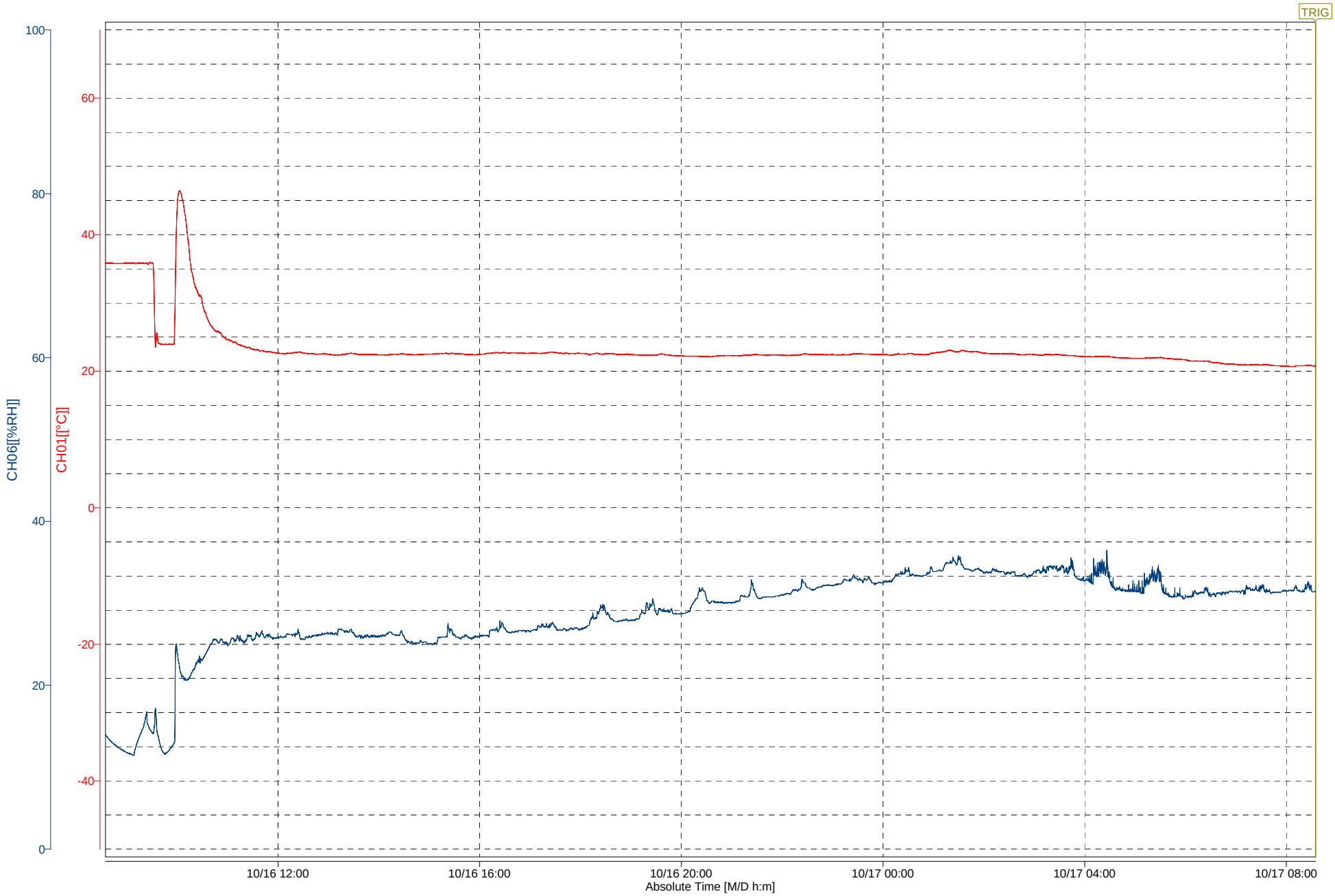

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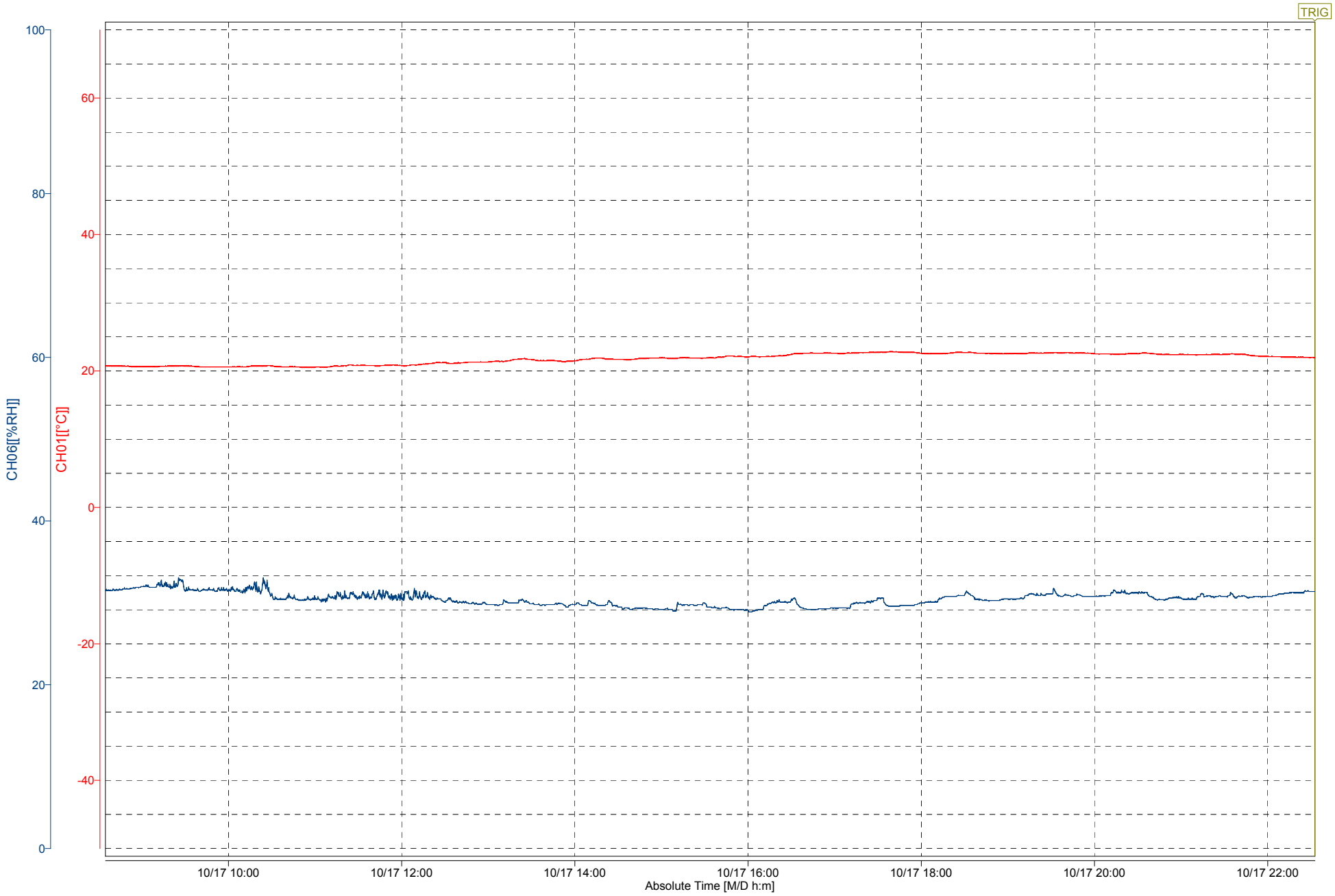


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SLI Global
Job# C1303
Temperature/Power
Variation (Option 1)
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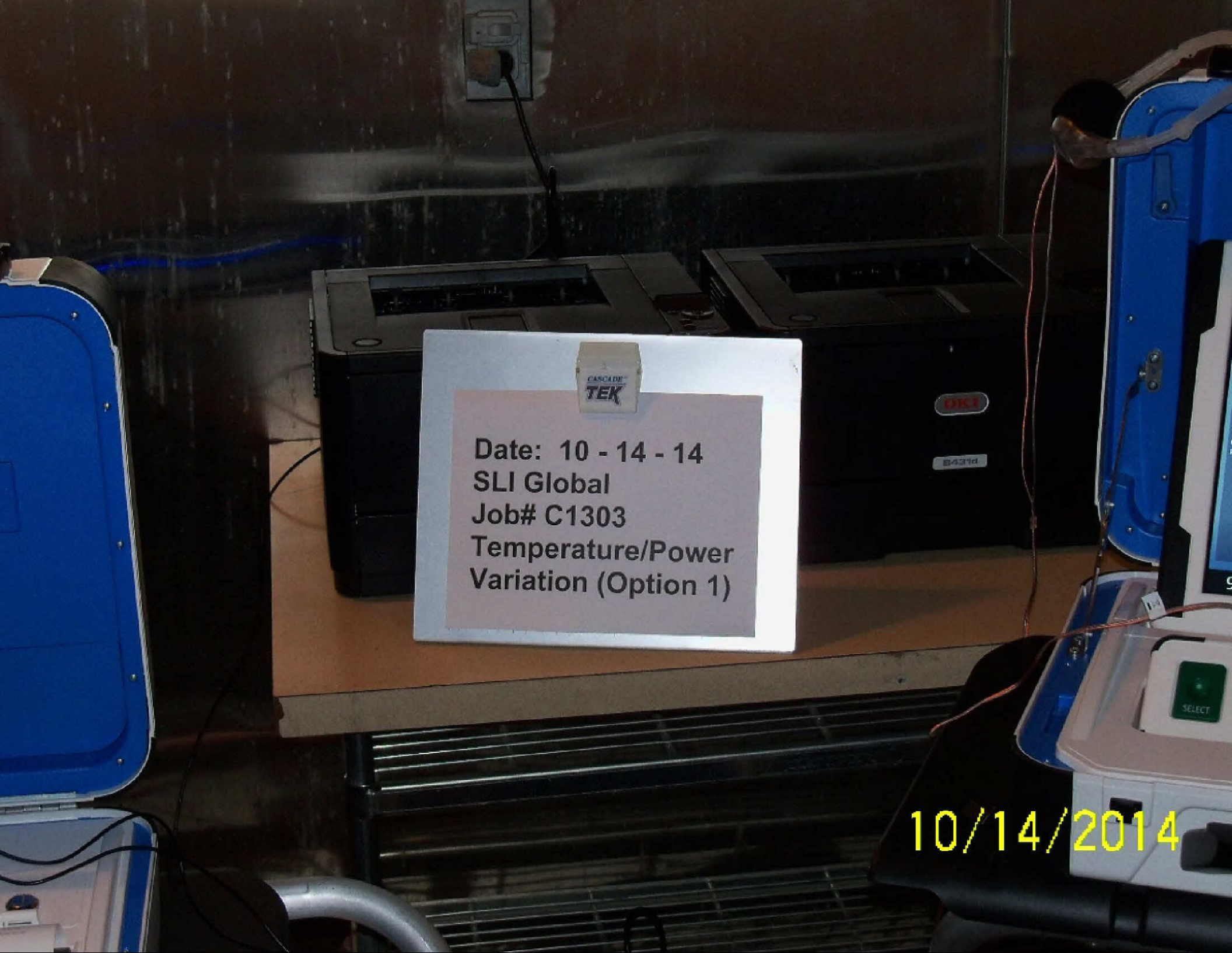
10/14/2014


CASCADE TEK
Date: 10 - 14 - 14
SLI Global
Job# C1303
Temperature/Power
Variation (Option 1)
OKI
B431d
SELECT
10/14/2014


Date: 10 - 14 - 14
SLI Global
Job# C1303
Temperature/Power
Variation (Option 1)
10/14/2014

Test Data Log

Job Number: C1384
Customer: SLI Global Solutions, Inc.

Date Started: 11/8/2014
Date Completed: 11/17/2014

Reviewing Engineer: David Bowles
Signature:

Responsible Technician: Tony Arbogast

Type of Test: Temperature/Power Variation
Test Specification: SLI Global SOW Section 4.4.3 Ref: MIL-STD-810-D, Method 502.2 and Method 501.2

Specimen Description: Central Count (COTS) Systems

Specimen P/N or Model No.	Specimen S/N
Tower Workstation-Central Client Server (COTS) HP Z230	2UA4141BP0
Tower Workstation-Central Client (COTS) HP Z230	2UA4141BNS
Tower Workstation-Build (COTS) HP Z230	2UA4141BNT
Cannon Color Scanner Image Formula (COTS) DR-G1100	GG30399
Cannon Color Scanner Image Formula (COTS) DR-G1130	GF300001
Kodak Scanner (COTS) 15600	47493479

Laboratory Temperature: +71°F

Laboratory Humidity: 18%RH

Test Description: Expose the samples to 163 hours of exposure with the customer to perform operational testing power cycling as specified in the test plan. Temperature controlled conditions of +10°C (+50°F), +35°C (+95°F) and ambient lab conditions.

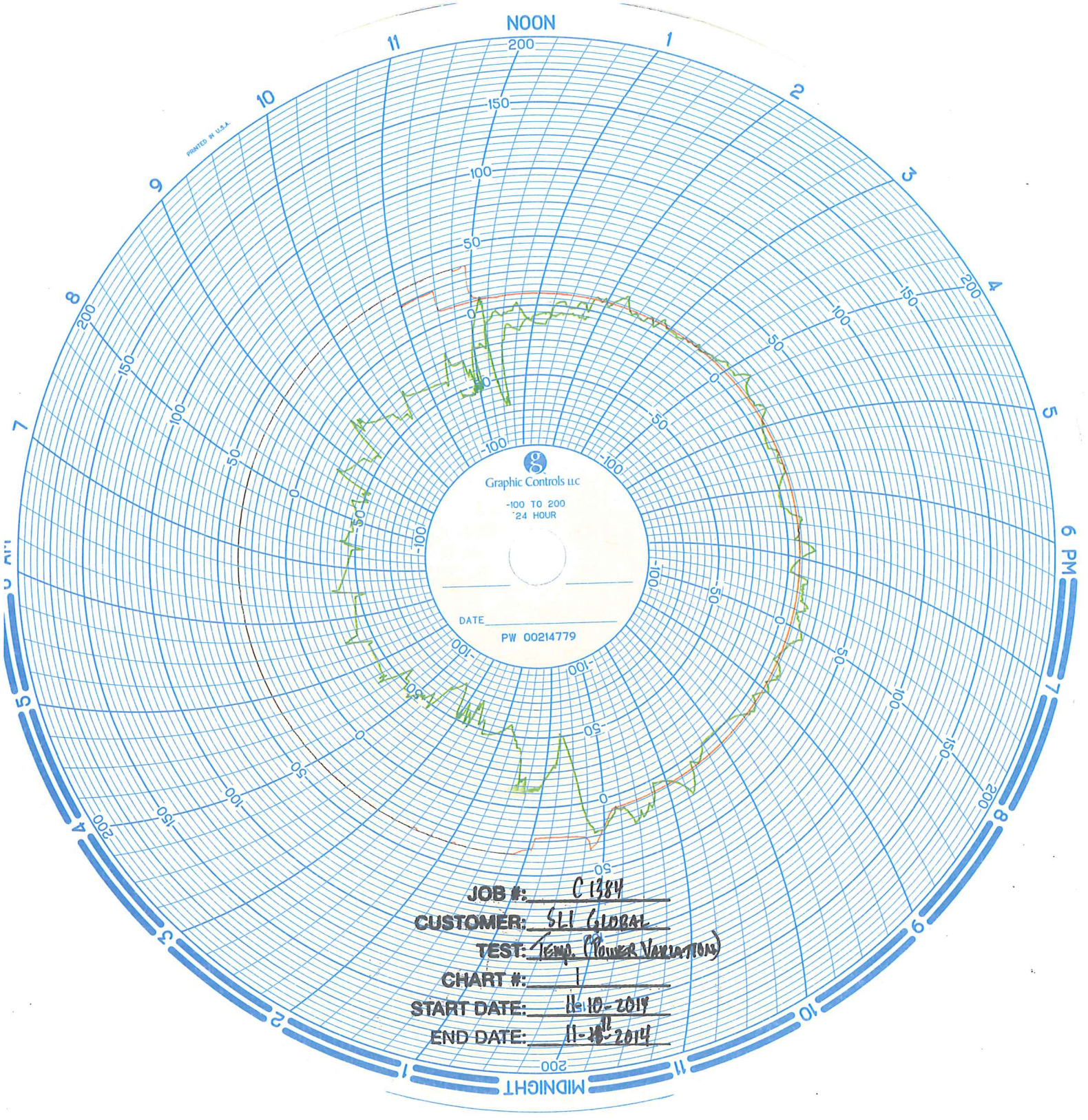
Initials	Date	Time	Notes	Photo
TA	11/8/2014	0749	The customer is on-site and to begin setup of the samples for exposure.	☐
TA	11/8/2014	0950	Setup to continue on 11-10-14. Samples at ambient lab conditions.	☐
TA	11/10/2014	0800	The customer is on-site and to continue setup of the samples for exposure. Begin setup of chamber #1217 for exposure.	☐
KH	11/10/2014	1131	Begin transition of the chamber to +50°F (+10°C) with RH off. The samples are operating at 117VAC. O.T. protection is set at 0°C and +50°C.	☒
KH	11/10/2014	1145	The chamber is at +10°C and begin 4 hour minimum hold (samples operating at 117VAC).	☐
TA	11/10/2014	1745	Adjust the sample operating voltage to 105VAC and continue hold at +10°C.	☐
TA	11/10/2014	2149	Adjust the sample operating voltage to 129VAC and continue hold at +10°C.	☐
TA	11/11/2014	0004	Begin transition of the chamber to +95°F (+35°C) while at 129VAC	☐
TA	11/11/2014	0149	Adjust the sample operating voltage to 117VAC and continue hold at +35°C.	☐

Initials	Date	Time	Notes	Photo
TA	11/11/2014	0550	Adjust the sample operating voltage to 105VAC and continue hold at +35°C.	☐
KH	11/11/2014	1050	Adjust the sample operating voltage to 129VAC and continue hold at +35°C.	☐
KH	11/11/2014	1202	Transition the chamber to +10°C and sample power to 117VAC. Continue exposure with O.T. protection set at 0°C and +50°C.	☐
TA	11/11/2014	1627	Adjust the sample operating voltage to 105VAC and continue hold at +10°C.	☐
TA	11/11/2014	2030	Adjust the sample operating voltage to 129VAC and continue hold at +10°C.	☐
TA	11/12/2014	0002	Adjust the sample operating voltage to 117VAC and continue hold at +10°C.	☐
TA	11/12/2014	1236	Begin transition of the chamber to +95°F (+35°C) while at 117VAC.	☐
TA	11/12/2014	0452	Adjust the sample operating voltage to 105VAC and continue hold at +35°C.	☐
KH	11/12/2014	0852	Adjust the sample operating voltage to 129VAC and continue hold at +35°C.	☐
KH	11/12/2014	1252	2 cycles of exposure is complete. Open the chamber and power of controlled conditioning. The customer will continue sample operation at 117VAC.	☐
TA	11/12/2014	2359	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/13/2014	0635	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/13/2014	1630	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
KH	11/14/2014	0600	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/14/2014	1800	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/15/2014	0600	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/16/2014	0605	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/17/2014	0602	Continue ambient condition operating exposure with the customer to perform operational testing as specified. Samples powered on at 117VAC.	☐
TA	11/17/2014	0728	Customer reports that exposure is complete. The customer will power down all of the samples and remove from the chamber.	☐
TA	11/17/2014	0810	Test Complete.	☐

DS2 - Test Equipment List

Test: Temperature (Power Variation) **Job Number:** C1384 **Date:** 11/08/2014

Test Equipment List						
Equipment Description	**Manufacturer**	**Model**	**S/N**	**Cal No.**	**Calibrated Date (mm/dd/yy)**	**Calibration Due Date (mm/dd/yy)**
ESS walk in chamber	Environmental Equipment Sales	PTN 069LGBE	T10J21518	1217	04/29/14	04/29/15
Digital Temp / RH Meter	Cole Palmer	90080-03	130033077	FR417	03/27/13	03/31/15
Variac Power Control	Staco Energy Prod Co	251OCT	N/A	FR491	Reference Only	
Digital Volt Meter	Fluke	75	37770341	FR235	05/16/14	05/31/15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MIDNIGHT
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Graphic Controls LLC
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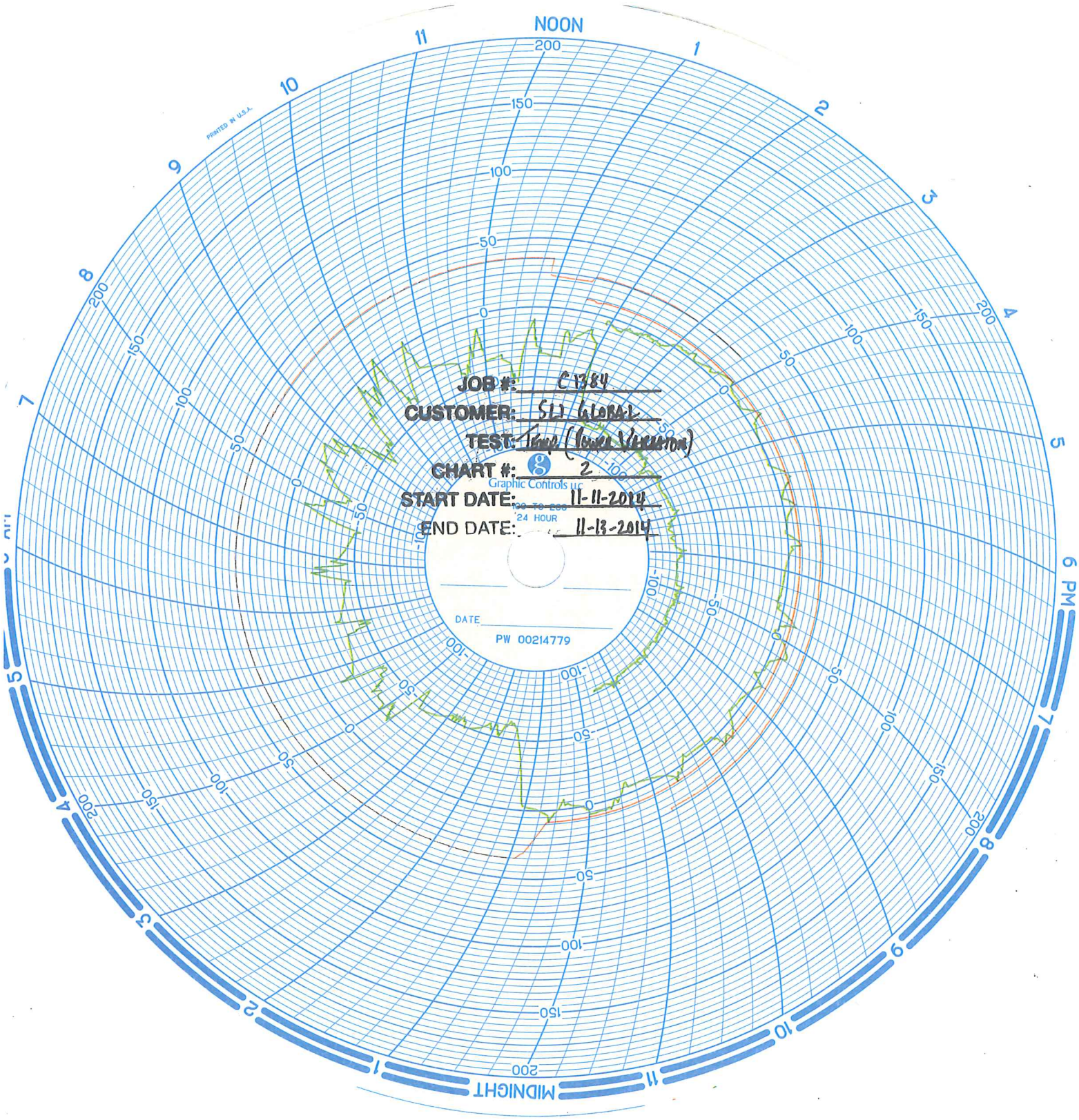
TEST: TEMP. (POWER VARIATION)
CHART #: 1
START DATE: 11-10-2014
END DATE: 11-12-2014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TEST: Temp (Under Vibration)
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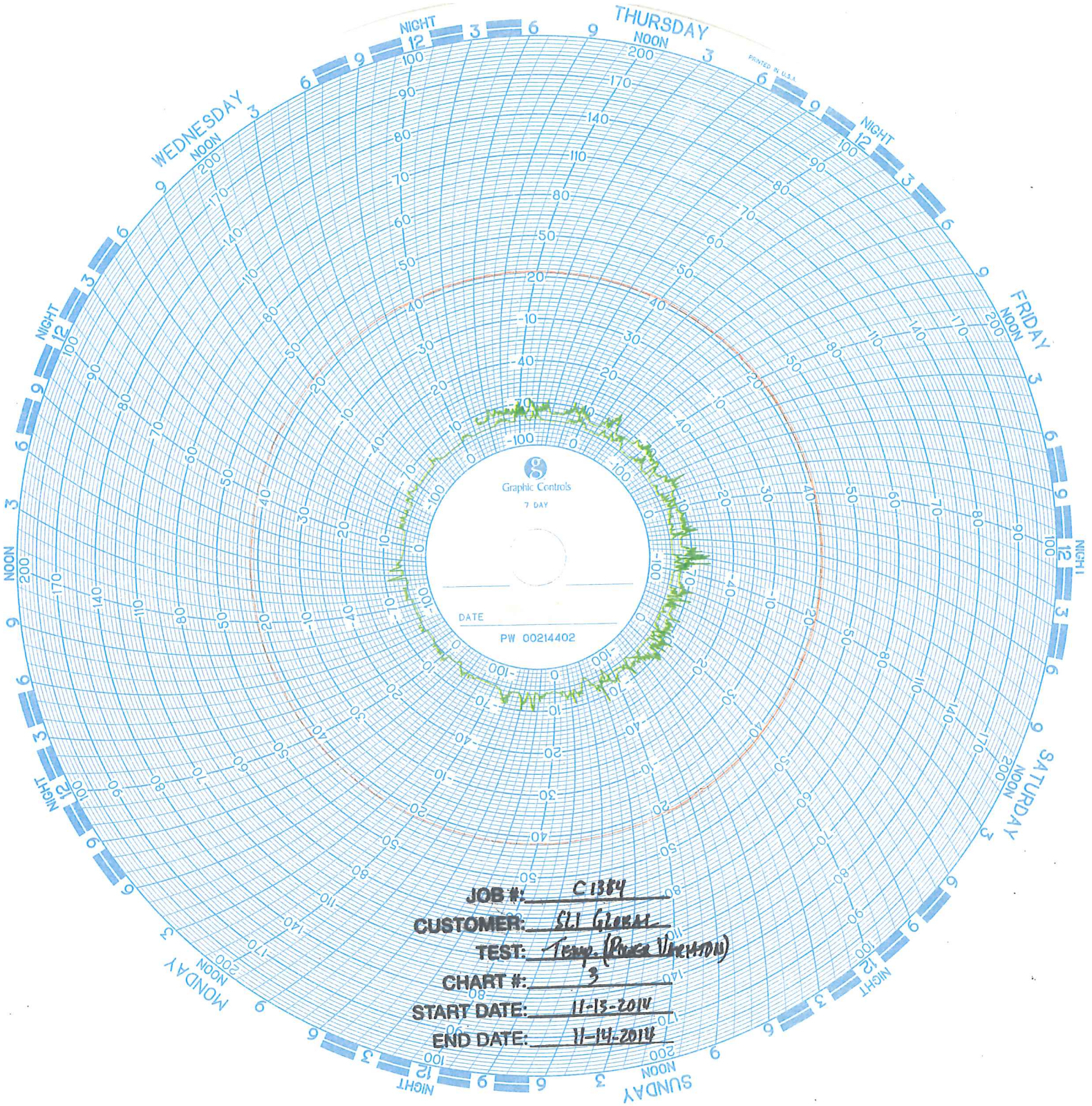
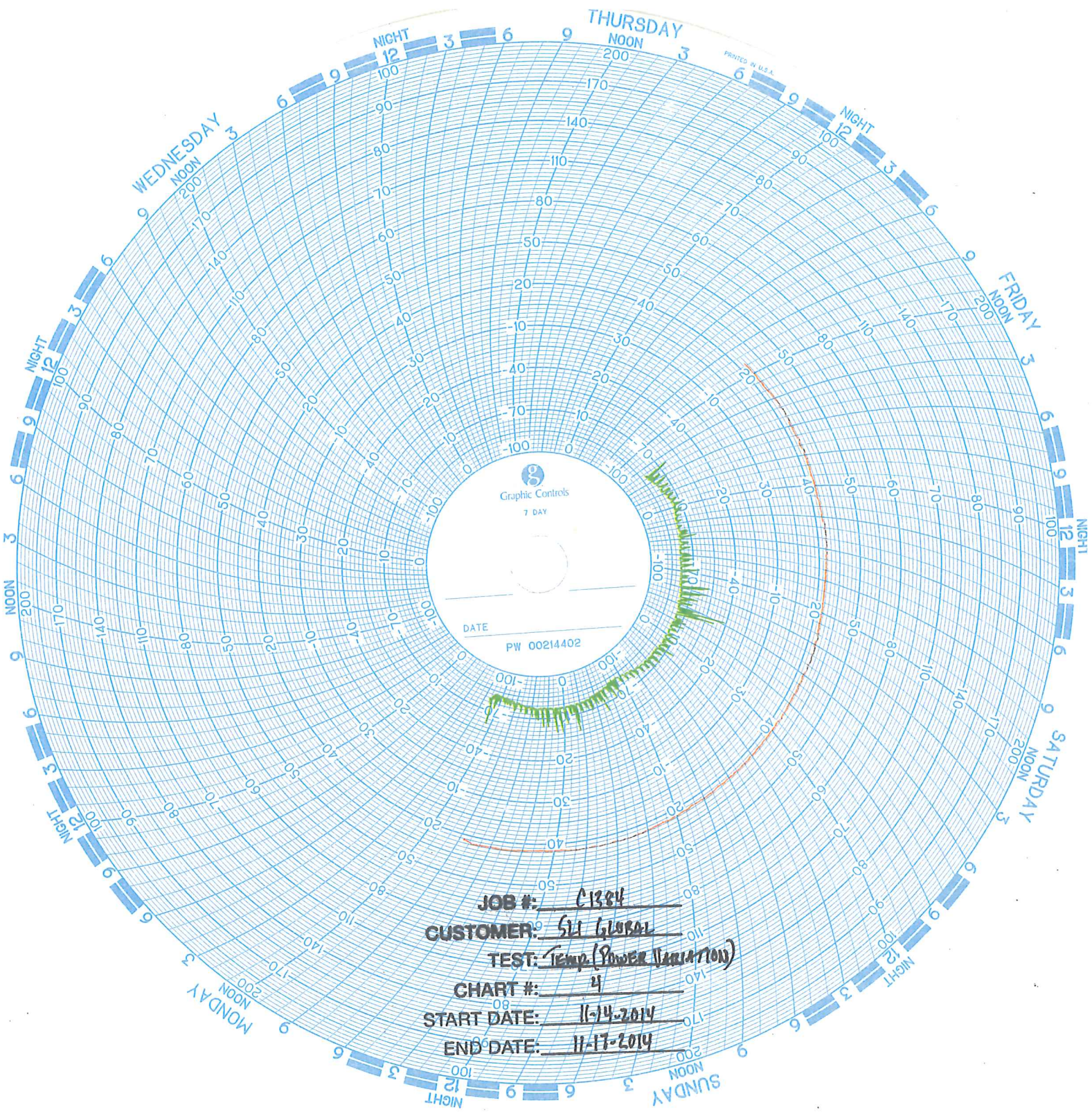
PRINTED IN U.S.A.


WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
NIGHT
NOON
Graphic Controls
7 DAY
DATE
PW 00214402
JOB #: C1384
CUSTOMER: SLI Global
TEST: Temp. (Power Variation)
CHART #: 3
START DATE: 11-13-2014
END DATE: 11-14-2014


THURSDAY
FRIDAY
SATURDAY
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
NIGHT
NOON
Graphic Controls
7 DAY
DATE
PW 00214402
JOB #: C1384
CUSTOMER: SLI Global
TEST: Temp (Power Variation)
CHART #: 4
START DATE: 11-14-2014
END DATE: 11-17-2014


Date: 11 - 10 - 14
SLI Global
Job# C1384
Temp./Power
Variation
11/10/2014